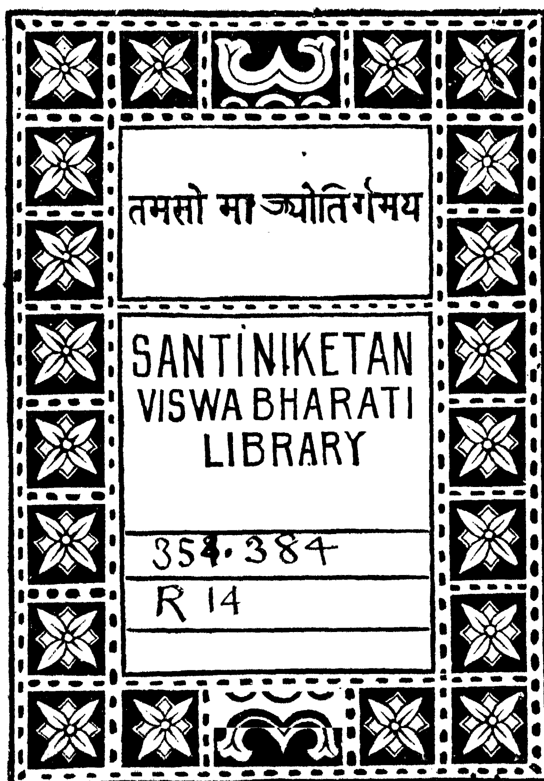

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THE

ECONOMICS OF LEATHER INDUSTRY

By the Same Author

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THE ECONOMICS OF LEATHER INDUSTRY

With special reference to Bengal

By

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Banking for Indian Beginners'



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"I believe that if Government could establish a Leather Survey as a Department to improve the collection of hides, to encourage exploitation of tan stuffs and to foster small tanneries and will adopt some measures to stop the export of raw hides, we will see a really vigorous indigenous industry, an industry well suited to India and one that will do more to increase general revenue than any that I know of."

W. A. FRAYMOUTH, F.C.S.,

Director, Esociet Tannin Research Factory.

PLAN OF THE MONOGRAPH

INTRODUCTION

The object of the monograph is to present to the readers a careful economic survey of the existing sources of supply, the present position of the leather-manufacturing industry and its future possibilities. It is high time to realise the new economic significance which the leather-manufacturing industry has attained on account of the increasing consumption of leather articles. I earnestly hope that the suggestions outlined here for the improvement of the raw material on which the entire economic life of the various branches of the leather industry depends would be carried out. I have also pointed out that the leather industry should be regarded as a "key industry" the preservation of which is necessary for national reasons, but apart from this the productive nature of the industry has been emphasised. The quality and strength of organisation which exists at present for the purpose of utilising our raw material into finished leather must be extensive and more efficient than at present.

The enquiry is conducted mainly on economic and commercial lines and covers only the Province of Bengal. The organisation of the export trade has not been neglected. Bengal is rich in those elements essential to the development of the leather industry and its prosperity. Her resources so far as raw materials are concerned are great. There is cheap and plentiful labour with the necessary natural aptitude for skill in the leather industry. There is an extensive market for the leather manufactured products.

But leather business can no longer be considered as a craft for manual labour but is essentially a manufacturing enterprise where advanced skill and mechanical science play an all-important part and like the other manufacturing industries there is a large turnover of product and rapidity of production. Unless Bengal responds to the altered conditions of manufacturing leather she can never hope to utilise her vast resources in a paying manner. Mere manual dexterity, hereditary maxims or even industrial experience of the chamars and the mochis will not suffice for the exigencies of the present situation. They must become men of science, intelligent students of Chemistry and be familiar with the writings of Dr. Proctor or Dr. Stiasny.

The industrial backwardness of India is best illustrated by the condition of its leather industry. A defective knowledge, the use of inferior methods, the lack of flexibility, versatility and obstinate industrial conservatism—these are the failings deadly in effect that continue to undermine industrial and commercial progress in the leather industry. These are the real enemies of Indian industrial advancement. All the world's customs tariffs or all the dumping syndicates that have been erected have done negligible harm when compared with the silent and sinister havoc wrought by these enemies. The real solution then lies in better scientific education systematically organised, a better intellectual discipline, a mind more open, and an enterprising spirit on the part of our educated capitalists.

A large part of the monograph has been written from personal inquiry helped by the Census Report, Trade Figures, Evidence of witnesses before the Indian Industrial Commission, Report on the Indian Fiscal Commission and the Acworth Committee and previous monographs

on leather working in the different provinces of India published in 1904 and the District Gazetteers of the Bengal Province. I have also consulted with advantage Dr. Watt's Dictionary of Economic Products, Dr. Proctor's Manufacture of Leather, Mr. C. A. Davis's "Leather Manufacture" and other authoritative publications on the scientific processes of manufacture and the chemical processes involved in the tanning industry. My acknowledgments are due to other books indicated in the bibliography.

The use of scientific and technical terms has been avoided.

I must express my thanks to the Editors of "The Welfare" for permitting me to reprint the articles that appeared in their monthly magazine.

18-8-25. B. RAMACHANDRA RAU.

CHAPTER I

The Economic Importance of Leather

"Although tanner's trade is not so spectacular as ammunition-making, leather is as much indispensable for the army as powder and shell."
B. M. Das.

Leather is fast becoming an indispensable article in the world's economy alike for industrial and domestic purposes. It is impossible to say when leather commenced to play an important part in the economy of man. The excavations of the neolithic graves of Denmark have unearthed the foot coverings made of leather pointing out the fact that the use of the leather was known to the neolithic man.[1]

No great stretch of imagination is required to find out the original uses to which leather was put. Probably the primeval man used the skin as a covering for his body employing the wool inside or out according to the state of weather. Gradually he must have learnt to convert the offensive and putrifying raw skins into handsome, soft, pliable and tolerably decent-looking covering. The ancient Egyptians must have been thoroughly proficient in this art of currying leather, for the preserved specimens of ancient Egyptian leather[2] though nearly three thousand years old still retain the colour and natural strength of the leather unimpaired. Historical evidence can be quoted in abundance as regards the antiquity of leather-making

[1] Alfred Seymore Jones, "The Sheep and its Skin."

[2] Mr. Watts, "Leather."

in this country. Our ancients seem to have been very thoroughly acquainted with the art of leather-making. The contention of some of the writers that the art of leather manufacture like the other arts of India has been borrowed from the Greeks is fallacious. There is another tradition that the rise of leather industries in India was due to Muhammadan rulers' encouragement and that Hindus prior to the Muhammadan invasion made use of grass shoes alone, as some people of Cashmere do at present.

Many ancient passages from the Rigveda,[1] Ramayana[2] and the Mahabharata[3] can be quoted as regards the

[1] Dr. Rajendralal Mitra says in his "Indo-Aryans"—"In the times of the Rig-veda leather mashaks for water were well known and Indra is praised as piercing the rain-confining skins or mashaks of the clouds. Bottles of leather were in common use. For Agastya in his poison-neutralising mantra says, "I deposit the poison in the solar orb like a leather bottle in the house of a vendor of spirits." In the laws of Manu Mashaks for water are alluded to under the name of dritri and its peculiar form with four feet left intact is pointed out. Directions were also given for the purifications of leather articles. Other smritis ordain that oleaginous articles preserved in leather bottles do not become impure by the contact of the cow-hide. In the present day, jars of leather are in extensive use in Bengal, and the United Provinces for the storage of oil and ghee. In the latter place, leather bags are universally used for raising water from wells and according to the law books of Sankhya and Likhita that water is declared pure which is kept in old leather bottles. Atri is likewise of the same opinion. The use of such words as "Charmatha charmapadh Varatra, Chasabandha" in old Sanskrit works indicates the use of leather articles. Hogskins were used in preparation of shoes.

[2] It is well known that Bharatha places the slippers of Rama on the throne of Ayodhya and carries on the Government in his name till he returns to the kingdom.

[3] The following leather articles are mentioned in the Mahabharata: Shoes, sandals, shields, coats of armour, quivers and gauntlets, saddles, bridles, whips, harness and military drums.

use of leather. Manu[1] speaks of skins being used as garments. He considers shoes made of leather as suitable gifts to a guru. He considers it as a heinous crime to wear shoes used by another.[2]

Megasthenes[3] speaks of the use of leather bits and bridles by the Indians to control their horses. Arrian[4] speaks of the white leather shoes worn by the Indians. Sudraka[5] in his "Toy Cart" speaks of the habit of wearing shoes on the part of women.

Coming to more historic times, Marco Polo[6] records that leather trade flourished to a great extent in the province of Bombay and specially in Guzarat. Barbosa[7] the English merchant says that the leggings of good thick leather used by Mahommed Bagadas' cavalry were worked up with gold knots and embroidery. Terry,[8] an English traveller records that the natives are "full of ingenuity and that they can make any new thing by pattern however hardsoever it seems to be done, the natives

[1] "Whatever skin is ordered for anyone that is for him even in the performance of vows," Manu's Code of Laws.

[2] Mr. Crooke, "Tribes and Castes of India," Vol. II, p. 170.

[3] Megasthenes says," When it is said that an Indian by springing forward in front of a horse can check his speed and hold him back, this is not true of all Indians but only of such as have been trained from boyhood to manage horses, for it is a practice with them to control their horses with bit and bridle and to make them move at a measured pace and in a straight course."

[4] Arrian says," the Indians wear shoes made of white leather elaborately trimmed while the soles are variegated and made of great thickness to make the wearer seem so much taller."

[5] Sudraka describes the mother of a rich courtesan as arrayed in flowered muslin with her feet thrust into a pair of slippers.

[6] Bombay Gazetteer, Vol. VI, p. 188.

[7] J. R. Martin's monograph on "Leather-making in Bombay," p. 2.

[8] Terry, "Voyage in the East Indies," 1655.

there make shoes, boots and clothes of English pattern and make them all exceedingly neat." The art of tanning must have been known to some extent and numerous tanneries of large size must have existed to produce leather harness and saddlery required for the army of the Moghul emperors and the irregular troops of the Zamindars and Rajahs of the 16th, 17th, 18th and 19th centuries.[1]

The leather industry, though an ancient one has never been considered as an honourable trade. The leather workers were known as "Chandalas" in the ancient books and were specially looked down on as a degraded class. A fictitious legend concerning the origin of this leather working class is given in the Institutes of Manu. The class of "kavararas" or leather workers was considered to be the descendants of the mixed marriages of "nishadas" with "vaidehas" thus representing a mixture of Brahmin, Vaishya, and Sudra. This mythical origin is attributed to them to justify the low grade they occupy in society.[2]

As the intelligence of man developed and as wants increased leather was put to an infinite variety of uses

[1] Mr. W. H. Moreland doubts this and especially in North India "saddles made of cloth stretched on wooden frames were used, bridles were made of ropes, leather belts and gaiters were not generally worn," *vide* his lecture, "Study on Indian Poverty," before the Patna University. As a reply to Mr. Moreland's contention the existence of the Mogul kettle drums which are not less than 200 years old should be mentioned. These are kept in the Lahore fort and "they are still as taut and resonant as in the far off days when they hearkened the Muslim chivalry to the charge in the wake of Nadirshah, Akbar or other great Mogul leaders, shaming in this respect the grotesquely painted European pattern bass and tenor drums of the Fauz-i-Ain (Sikh regular troops trained by Europeans) of whose heads but a few shreds of leather remain."

[2] Briggs in his "Chamars" repeats the other traditions that are usually repeated to account for the origin of the Chamar caste, pp. 14-20.

and though the primeval man's only use for it was as a covering for his body, yet in the modern days it plays an important part in the domestic economy of man. Leather is shaped into a large number of articles such as ornamented shoes for the richer classes, shoes for the middle class, boots and slippers, bags for drawing water, straps for fastening to the ploughs, musical instruments like the Dugi, Tabla, Kholi, Khanjani, Mridanga, Dhak and Mandar, saddles, bridles, hide ropes, purses, blotting pads, belts, artistic leather cases, binding books, well-buckets, whiplashes, leather baskets, belting for mills, leather cover for seats, oil and molasses jars, bellows, scabbards for swords, shields, coats of armour, quivers, gauntlets, washers used in cotton and ginning factories, leather corsets, strops for shaving, conveyors in banks, and saddles of artificial legs. Many more articles of our daily use contain parts made of leather. Hence if the hides and skins are properly used and scientifically prepared they will be a fruitful source of national wealth and increase the economic prosperity of India.

During the period of the late war Great Britain had to depend on America for the huge supply of leathers and tan and though Madras and Bombay have done their bit to minister to the Imperial needs for leather, it was America's help that saved the situation.[3] It can be

[3] *Vide* evidence of Mr. B. M. Das before the Indian Industrial Commission. 'It is America who supplied the bulk of leathers and the tanning materials, *viz.*, tanning extracts and has really saved the situation. If tanning industries were properly developed in India as her vast resources in tans and hides would justify, Indian leathers would have been valuable assets to the Empire and England would not have required in that case to import American leather and tan at inflated prices at the time of economic stress.'

Also refer to his evidence before the Indian Fiscal Commission—n the late war India supplied tanned cow and buffalo hides to the

safely claimed that development of the Indian leather industry is largely essential for the national safety and security of the British Empire in case of war. It will be of considerable economic importance and add to the industrial strength of the country in peace time.

United Kingdom to the value of 4¾ crores of rupees. An equally large stock of hides was consumed in the country in the equipment of the army in India.'

CHAPTER II

WHAT IS LEATHER-MANUFACTURE ; A SURVEY OF THE EXISTING LEATHER INDUSTRY

"India will continue to pay an unnecessary and undesirable tax as long as those in the country who possess money will not risk their reserve funds for Industrial purposes." *Sir Thomas Holland.*

Leather is the preserved skin of various animals. Dr. Watt says that "leather consists of hides and skins of certain animals separated from fleshy and fatty matters and prepared by means of chemical agents in such a way that they resist the influence to which they are naturally subject. Skins in their fresh state are tough, flexible and apparently well-suited for clothing, etc., but on drying they become horny, hard, pervious to water and finally putrid. These changes are prevented by the process of leather manufacture and at the same time the skin is rendered stronger, more impermeable to water, more supple and less likely to be affected by wear and tear. The final result of the processes ordinarily employed is a chemical combination of certain constituents of the skins with tanning." [1]

Before entering on the other questions of leather manufacture it is necessary to outline a short sketch of the existing leather industry. The economic division of the leather industry in its widest sense consists of (1) the export of hides and skins, (2) the curing and tanning of

[1] Dr. G. Watt, "Dictionary of Economic Products of India."

leather, (3) the manufacture of boots, shoes, and other articles.

The inferiority of Indian leather is a patent fact and it is attributed to the fact that the village tanner carries on his primitive methods of tanning uninfluenced to any extent by the modern methods of procedure. The process of indigenous tanning with lime and bark is rough and simple. His manner of working and his tools are as simple as his life. His supply of hides and skins comes from the animals which have died of disease, old age or injury. Specially in the villages as in the big towns there is no killing of cattle for food. The village chamars take these skins and supply in return the shoes and leather articles required for agricultural pursuits. In some cases they enter into agreement with the Zamindars for the lease of the skins of all the dead animals in their Estates and in return they supply ready-made shoes and other leather articles. They take lease of "sasanabhumis" in order to obtain the carcasses of dead animals. This hereditary organisation of the industry which was the prevailing feature in the nineteenth century is being slowly broken by the effects of the external competition.[1]

[1] The same is the case in the Presidencies of Bombay and Madras. In the Northern portion of the Madras Presidency the "Madigas" and the leather workers are also suffering from competition. The various sub-agents come from the Tamil districts to collect the hides and skins and they are sent to Madras for tanning. In the Southern parts of the Madras Presidency, the Mappillas collect the hides and skins and send them for tanning to Ambore and Vellore. Weekly fairs are held and the Muhammadans usually purchase all the available hides and skins.

In the Presidency of Bombay also, Poona, Ahamadabad and Bombay are the recognised centres of leather industry. The agents of the tanners collect the hides for which there is no local demand and send

Indigenous village tanning is fast disappearing and the agents of large tanneries buy the hides by paying a slightly higher price[1] and the agents of the exporting firms also compete with them for the possession of these hides. Hence the carcasses of dead animals or slaughtered beasts in the interior are sufficiently treated to allow their being exported to foreign countries or they are sent to the large and organised tanneries where chrome tanning and bark tanning is carried on on a large scale in a more scientific manner.

As the village chamars are being restricted in their tanning business solely on account of the shortage of hides and skins they are taking to agriculture[2] and the chamar's

them by railways or the "machavas" (country boats) which trade along the Coast to Bombay. Local agents of Bombay tanneries are found as far afield as Peshawar, Rawalpindi, Aligarh, Agra and the major portion of the supply comes from Kathiawar, the Deccan, by the agent working in such towns as Ahamadabad, Nadiad, Godra and Sholapur. Dry salted hides are purchased by these agents and sent to the tanneries.

In olden times the chamars did important economic services to the village and received in turn payment in kind as follows. They were the most important labourers of the village. They not only repaired all leather, removed dead cattle, cleared the fields before ploughing but assisted the agriculturists in the reaping of the harvest. They were the coolies of the village doing all odd work. They usually received one-tenth of the grain crop. The skins of the dead sheep and goats were usually left to the chamars but a part of the flesh say $\frac{1}{13}$th in the case of a cow, ox and calf and $\frac{1}{10}$th in case of buffalo was given to the chuhras or sweepers of the village.—*Vide* Brigg's "Chamars."

[1] The increase in the value of the raw material can be illustrated by the following quotation. In 1847 the value of the raw hide and skin was seven annas five pies and three annas two pies respectively. In 1914 the average value was six rupees for the hide and Rs. 1-9-6 for each skin.

(*Vide* Appendix D—Report of the I. I. Commission, p. 354.)

[2] *Vide* Appendix II showing the chamars distributed according to occupation.

wife finds occupation in mat-making, wicker-work, baskets and other articles for domestic use. The chamars are becoming general labourers and wage earners taking to agriculture. In the District of Bhagalpore sixty-six per cent. of the chamars have taken to agriculture and twenty per cent. of them have become general labourers and the remaining seven per cent. alone believe that "there is nothing like leather."[1]

This decline of the village tanning industry is no hardship nor is it to be regretted. The village tanners are resorting to cleaner and more profitable industries. From the social point of view, which is quite different from the commercial standpoint, the transference of the different tanners and leather workers from their present degraded classes to more honourable lines of industry is a commendable feature.[2]

So long as there is great external competition with him, so long as no agency exists to teach these chamars the best use of improved tanning materials, so long as these continue to be improvident, drunken, and dishonest [3] and so long as the use of foreign tanned leather is on the increase there is no hope of salvation to the village tanners. Improved methods of tanning adopted by large-scale tanneries in the cities, production on a large scale and the growth and spread of communication are tending to make the chamar lose his tanning business altogether. The village mochi or the leather worker works mostly on imported leather from Calcutta or takes up the inferior leather tanned locally by the village tanner for the purpose of making

[1] District Gazetteer, Bhagalpore District—Bengal Province.

[2] *Vide* Appendix III showing the occupation of the chamars in business other than their hereditary one.

[3] *Vide* Briggs, Chamars, p. 225.

native musical instruments such as Dholes, Tubla, etc. The village and the town mochis manufacture boots and shoes out of imported leather and some of them have learnt the use of the sewing machine. Their skill is sometimes of a high order and their finished products extract the admiration of the severest connoisseur.[1]

But like the destiny of the village chamar that of the mochi [2] is indeed dark and gloomy. Foreign competition is daily increasing and except in out of the way villages his boots and shoes are slowly losing ground. However there is not much competition in the manufacture of leather bags, harness and saddlery, straps, bellows, barbers' boxes, ropes and other articles used for agricultural purposes. There is not much prosperity in store for either the mochi or the chamar. The mochis of the town are already forced to become cobblers or musicians or grooms.

As for the mochis co-operation can do something to alleviate their lot.[3] Two co-operative societies have been started at Dacca to help the shoe workers in purchasing raw materials at a wholesale rate and retailing it to members. One co-operative society is working successfully

[1] The Gorakhpur mochis have sent their wares as far as Melbourne and Paris receiving medals in both places.

[2] As the Census Report of 1921 observes, "it is not an easy matter to separate these two castes which both follow traditionally the occupation of leather workers. The mochis generally belong to Bengal, while the chamars are more often immigrants from Behar and further west." It attributes the falling off in this immigration as the chief cause for the decrease in the total number of chamars and mochis in Bengal. In 1901 they were 548,913 and in 1911 there was 7·8 per cent. increase and the total number rose to 591,789. In 1921 the total population is 569,966, a diminution of 5·7 per cent. Bengal Census Report, Vol. I, p. 353, Statistics of Caste.

[3] The caste influence among chamars and Mussalman tanners is very great. The spirit of co-operation can be fostered among them leading to industrial co-operation.

among the chamars of the Machua Bazar Street in Calcutta. The Government seems to have realised the necessity of pushing forward among all classes of leather workers the co-operative societies to furnish them with credit and organise their supply of raw hides and skins. Seven or eight societies have been started in Bombay but they are not well-managed. The illiteracy of the chamars is a great obstacle.[1] The hold of the Mussalman middlemen is very great. In some districts the chamars have signed bonds to buy hides from their own saukar. An extension of these societies among shoe workers seems to be a promising remedy but co-operative credit alone cannot be the sole panacea for the amelioration of their lot. Education in the three R's seems to be a great desideratum and unless their habit of drunkenness is totally extirpated and unless the sort of social stigma that is attached to the leather trade is removed there is no incentive for them to improve their position. As Dr. Marshall would say "the chamars should attain economic freedom" which according to his interpretation would mean "the inculcation of habits of self-reliance, forethought, deliberation and freedom in choice."

The export trade in hides and skins is increasing on the other hand and a few of the bigger tanneries were making good profits by sending their tanned skins to the United Kingdom during the war time. The Arathdars have made Calcutta the important hide market of the world and it exports nearly 72 per cent. of the raw hides exported from India.[2] A large number of hides and skins

[1] *Vide* Appendix IV for having an idea of literacy among the chamars and the mochis.

[2] The Hon'ble Mr. M. S. Das says, "I know that about 70,000 rupees worth of hides comes to Calcutta every day for export." *Vide* his evidence before the I. I. Commission.

can be obtained from the slaughtering houses alone.[1] It is not the salted hides of North-West Bengal alone that find their way to Calcutta but also the famous Dacca hides coming from Eastern Bengal, and the dried hides which are usually sent from Madras when they are in excess of the demand of the local tanners and large quantities come from the United Provinces and the distant Panjab. Hides from Assam and Central Provinces also find an outlet through Calcutta.[2]

[1] It should be interesting to note that the daily average in Calcutta's premier market, *i.e.*, Sir S. Hogg market, is as follows :— 112 carcasses of beef, 168 of mutton, 10 to 12 of pigs, 5 of veal are offered daily in the above market.

According to Mr. W. A. Fraymouth's evidence the slaughter house in Calcutta yields 1,000 hides per day (small as well as big included).

[2] The following tables from the Internal Trade of India show the course of raw hides and skins into the port of Calcutta :—

Import into Calcutta of Raw Hides.

From	1916-17	1917-18	1918-19	1919-20	1920-21
Assam ...	32,399	29,861	65,421	29,962	19,812
Bengal ...	399,951	331,636	388,174	326,944	129,486
Bihar and Orissa ...	173,105	147,141	195,732	158,817	71,517
United Provinces ..	163,618	58,472	150,763	218,150	38,931
Punjab ...	23,968	24,378	39,828	45,079	15,737
C. P. and Berar ...	15,586	12,340	18,516	25,991	7,021
Bombay ...	404	——	48	827	16
Madras ...	2,922	2,882	2,339	2,260	161
Other places ..	4,035	2,554	3,469	5,510	697
Total.	835,994	609,264	864,297	813,570	283,378

Imports of Raw Skins.

From	1916-17	1917-18	1918-19	1919-20	1920-21
Bengal ...	33,309	28,121	38,210	55,110	25,467
Bihar and Orissa ...	44,947	30,153	41,860	52,131	22,005
United Provinces ...	35,279	41,525	34,894	79,400	12,431
Punjab ...	3,279	33,407	103,966	60,210	12,388
Bombay Port ...	1	13,373	9,029	1,185	515
Other places ...	693	4,980	10,746	4,779	1,646
Total	117,526	151,559	238,705	249,825	74,472

The arathdars of Calcutta make advances to the beparies usually against railway receipts up to 80% of the value. They make no charge for the godown accommodation. The advances are sometimes made without charging any interest. The arathdars get a commission of one rupee eight annas per 20 pieces of hides and one rupee eight annas per 100 pieces of goat skins. The beparies exercise great influence on the selling price of these hides.

The shippers visit the arathdars' godowns and select the hides offered for sale. A certain price is offered for the whole lot, *i.e.*, all round parcel containing different qualities of hides. The arathdars usually try to obtain the best price and as soon as they sell it is the shipper's duty to remove the hides. The shippers trim the hides, remove the claws and arsenicate the hides so as to preserve them. The shipper usually classifies them as follows :—

(1) Agras, *i.e.*, well cleaned hides of a good yellow colour.

(2) Purneas, *i.e.*, darker and not so well cleaned.

(3) Darbhangas, *i.e.*, fairly cleaned hides.

(4) Patnas, *i.e.*, badly cleaned hides with flesh and sinews adhering.

(5) Bazar, *i.e.*, very badly cleaned and rotten in places.

The salted hides are subdivided into Dacca, Meherpores, etc., and each class is subdivided into (1) slaughtered, (2) dead, (3) rejected, (4) double rejections according to their quality.

The selection of the hides and the work of classifying is done by Mahomedans who are generally paid about 50 Rupees per month by the shippers. The first classification is originally done by the arathdars in their godowns; the second is done by shippers. The second only checks the former and there is not much difference between the two. As regards the recognised exporters'

in marks the Calcutta hide market refer to the VII Appendix,

Of late English exporting firms[1] have interested themselves in the raw hides trade and they finance their agents to collect raw hides and skins for export. These agents are always busy working in different cities for the purposes of procuring the best hides ; so much so that the Indian tanners finding it difficult to get good quality hides for chrome tanning had to bargain for the levying of export duties in the fond expectation of retaining the best raw material for themselves.[2]

This is so far as the organisation of the indigenous leather export business is concerned. But in Bengal a few tanneries are working on Western lines of production employing technical experts using machines and adopting chemical processes for chrome tanning. But their number is very small. There is not a single big factory[3] solely for manufacturing boots and shoes nor are there any art industries in leather carried on by small capitalists.

[1] Messrs Allen Bros. & Co., Ltd.
,, Copper Allen & Co., Ltd.
,, E. D. Sassoon & Co., Ltd.
,, Graham & Co.
,, J. Nahapiet & Co.
,, M. M. Ispahani & Co.
,, A. Forbes & Co.
,, Chambers & Co.
Messrs. Bird & Co., Ltd.
,, D. Sassoon & Co., Ltd.
,, H. T. Pearson & Co., Ltd.
,, A. B. Diugnam, Ltd.
,, Skippers & Co.
The Orient Company,
,, Mather & Co.

[2] *Vide* Dr. Sir Nilratan Sircar's written evidence before the Indian Industrial Commission. He says, "the situation presents a clear case for restriction by the State of the export of hides and skins, particularly of such as are suitable from chrome tanning."

[3] "Quite recently three boot factories employing European Overseers have been started. About 3 crores of capital have been invested in new companies handling leather." *Vide* Journal of Indian Industries and Labour, 1921.

Although adequate facilities exist in Calcutta for the development of a tanning industry as in Bombay and in Madras and although the manufacture of boots and shoes, harness and saddlery can be taken up successfully as at Cawnpore and Agra yet they have not become accomplished facts. There are about two hundred and forty tanneries in whole of Bengal. Their combined daily output is about 1,000 cow hides, 200 buffalo hides, 250 sheep, 100 calfskins. They employ about 1,500 men.[1]

[1] *Vide* Journal of the Indian Industries and Labour, February, 1921.

CHAPTER III

Causes of the Decline of the Indigenous Leather Industry

"The volume of trade, more specially the volume of foreign trade, bears no relation whatever to the total national well-being dependent upon it. The national interest in foreign trade lies not in the volume of that trade but wholly in its character as providing sustenance for industry or opportunity for employment.—*L. S. Amery, "Fundamental Fallacies of Free Trade."*

Bengal is in the singular position of importing a large quantity of raw hides and skins[1] every year but the bulk of them are exported to foreign countries like Germany Austria, the United Kingdom, the United States of America, Italy and Spain. She does not convert them into leather suitable for various uses but she imports the major portion of her requirements from abroad. The following tables show the import of raw and tanned hides and skins and leather, wrought as well as unwrought into the Province of Bengal.

[1] In commercial parlance distinction is drawn between raw hides and skins. By "hides" are meant the pellicles of buffaloes, cows, horses, bulls and camels. By skins are meant the undressed skins of smaller animals as calves, goats, deer, and sheep. The term "East India Kips" refers to the half-tanned or "crust" hides exported from the Presidencies of Bombay and Madras. By 'kips' are meant the skins of smaller Indian animals of the bovine class. The skins of crocodiles, alligators, and serpents can be utilised for making some kinds of fancy leather.

TABLE I.

The import of hides and skins, raw as well as tanned or dressed into Bengal from other Provinces of India.

Years.	Raw Hides	Dressed Hides.	Raw Skins.	Dressed skins.
	Cwts.	Cwts.	Cwts.	Cwts.
1916-17 ...	29,414	254	1,596	10
1917-18 ...	21,044	88	1,661	...
1918-19 ...	23,902	111	2,147	1
1919-20 ...	18,866	243	3,305	7
1920-21 ...	14,040	90	1,709	12

TABLE II.

The import of wrought and unwrought leather into Bengal from other provinces of India.

Years.	Wrought leather (excepting boots and shoes).	Unwrought leather.
	Cwts.	Cwts.
1916-17	913	2,846
1917-18	724	1,198
1918-19	1,524	1,625
1919-20	902	3,284
1920-21	1,294	2,531

TABLE III.

The value of imports of raw and tanned hides and skins in to Bengal from other countries.

Years.	Raw hides and skins.	Tanned hides and skins.
	Rs.	Rs.
1916-17	113,032	1,473,405
1917-18	281,030	1,072,085
1918-19	5,498	992,392
1919-20	31,303	1,393,999
1920-21	3,484	3,503,299

The above tables give an idea of the total importation of raw and tanned hides and skins, leather wrought and unwrought into the Province of Bengal from the other parts of India and foreign countries. In addition to these Bengal's resources in live stock have to be counted,[1] in order to arrive at the total production of raw and tanned hides and skins, wrought and unwrought leather available for the purpose of manufacturing.

[1] According to the Cattle Census of 1919-20 the number of cattle per hundred acres sown area ranges to about 86 in Bengal. The average for British India as a whole is 57 cattle per hundred acres and 61 cattle per hundred of the population.

The following tables speak of the exportation of raw and tanned hides and skins and wrought and unwrought leather *from* Bengal *into* other Provinces of India :—

TABLE I.

Years.	Raw hides.	Tanned hides.	Raw skins.	Tanned skins.	Wrought leather.	Unwrought leather.
	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.
1916-17 ...	403,827	141	34,004	9	575	414
1917-18 ...	339,275	325	29,088	...	90	134
1918-19 ...	392,814	752	38,497	11	248	808
1919-20 ...	330,031	2,879	51,300	102	156	245
1920-21 ...	136,476	861	25,684	73	179	474

TABLE II.

The value of the exports of the raw and tanned hides and skins sent from Bengvl to foreign countries.

Years.	Raw hides and skins.	Tanned hides and skins.
	Rs.	Rs.
1916-17	68,064,288	122,836
1917-18	34,803,066	56,658
1918-19	39,170,877	167,090
1919-20	135,755,593	2,599,960
1920-21	27,716,753	567,718

The above trade returns are an index of her economic weakness rather than strength.[1] As Dr. Sir Nilratan Sircar says "from the variety of hides and skins available here various sorts of leather from the stiff sole to the soft chamois leather may be manufactured in this country." Bengal has access to the finest material in the world, *i.e.*, the goat skins but the great majority of it goes out as raw material instead of as finished leather. A large quantity of leather goods are imported into Bengal yearly. The bulk of this is probably in dressed skins for book binding and upholstery work in high class leather, for belting and machinery, boots and shoes and to some extent in fancy leather goods. The whole of this could be captured by native manufacturers. The manufacture of glacé kid is quite possible but beyond the starting of a few organised tanneries at Calcutta, Berhampore and Dacca, the leather industry has not taken any great strides in its progress.

In spite of the other natural advantages which Bengal possesses the development of leather manufacturing industry has not taken place on account of the following reasons. Leather tanning has developed to a certain extent but the manufacturing of leather goods, boots and shoes have not received any marked impetus.

The leather industry is looked upon as an offensive trade. As the materials are uninviting tanning business is confined solely to men of low standard of life and the rigidity of caste rules is such that they are denied all

[1] Economists look to the trade position of a country and consider it as a barometer of progress and prosperity of the nation. Although India's foreign trade has expanded it does not indicate the prosperity of the nation. It has grown at the expense of her indigenous industries and her internal trade. *Vide* J. W. Root, "Trade Relations of the British Empire."

benefits of regular training, higher education and the lead and co-operation of their more intellectual countrymen. This prevents the introduction of either intellect or capital in any quantity into the indigenous tanning business of the chamars or the village and town leather manufacturing business of the mochi. These chamars and the mochis possess hereditary knowledge and skill and some of them are quick to learn,[1] but before they can become efficient leather workers they require some scientific standardisation in order to be effective. The position of degradation and neglect cast upon this particular section of society acts as a great handicap to all improvements. Some shrewd native gentlemen have realised the possibility of making money in the leather business but they prefer to act as contractors for supply to the bigger tanneries. People should overcome their prejudices and undertake to do any kind of work in leather. Good tanned pig skins are rare in India as most of the Muhammadan leather workers fight shy of it.[2] But if tanneries are worked with a personnel bereft of all prejudices they can turn out good work and produce finished leather of excellent quality. Nothing short of a social revolution can achieve this object.

Again the village leather industry is conducted on old-fashioned, inefficient and uneconomical lines. The village

[1] *Vide* evidence of Dr. Sir N. R. Sircar before the I. I. Commission. Mr. B. M. Das also says, "the chamars are hardworking, regular and intelligent. They are capable of easily adapting themselves to new methods of work and understand new processes. Some of the chamars are skilled bark tanners and taxidermists and the leather that some of these turn out will, I am sure, extort admiration from the severest critic."

Mr. Fraymouth also testifies to the intelligence of the chamars

[2] *Vide* Appendix VI for the table showing the distribution of the leather workers, etc., according to their religion.

tanner has not adopted the recent improvements and though several suggestions have been made for improving their business the village tanner goes on with his primitive processes as usual. The defects of the indigenous village tanning have been ably summarised by Mr. A. C. Chatterjee as follows:—(1) overliming, (2) antiquated tools for fleshing and removing the hair, (3) insufficient attention given to bating, (4) the actual tanning period is too short and the process is not properly regulated, (5) there is very little attempt at currying.

Although improved processes can be easily adopted the native tanners are too poor to sink any amount of capital in this tanning business. They are the poorest, the most improvident of the castes and do not like to cherish much the ideas of any form of industrial co-operation. The day of the small country tanners is rapidly passing, with their irregular output and easily satisfied clientele. Now the Indian tanner has to produce for a highly organised shoe-industry which requires regularity in the product, in colour, substance, strength of fibre, and other qualifications which were not insisted upon so much in the earlier days gone by.

The village mochis' position is no better. The country shoe-maker like his fellow brother, the tanner is also destitute of capital. He is the drudge of the village mahajan or middleman who usually finances him. The increasing activity and competition on the part of the agents of the exporting houses which resulted in increasing the price of raw hides and skins led to complicate matters and made it impossible for the poor mochis and leather workers to successfully compete with them. As the export trade in raw hides and skins began to increase in volume the task of retaining the raw material became hopeless and the hitherto independent mochi now becomes a worker

for the mahajan who is more a capitalist than a producer. Had the Indian mahajan been a real entrepreneur possessing technical skill in the art of tanning and had he been a real craftsman and employer things would have been quite different. The hereditary choice of profession enforced by caste rules has not only secured progressive permanence of specialised skill of Indian artisans[1] and craftsmen in the different arts but it has virtually shut out effective competition or inroads of labourers from the other castes. Just as in tanning and leather-working so also in other industrial arts notably weaving the first stage of working or production was that of small independent producer employing his own capital and labour and the consumers had direct relations with these producers. As demand began to increase this independent small producer could not cope with the demand and the second stage of production, namely, the guild system of independent craftsmen came into existence. This took place in cotton and weaving industry. As the extent of the market widened a marked division of labour and specialisation of functions ensued. The independent craftsman who was an employer, a labourer and a merchant as well had to delegate his functions to the mahajan who undertook to provide the necessary capital and look after the finished product. But the relation of "Cash nexus" has not become an established feature between the mahajan and the labourer. Had mechanical inventions taken place the factory system [2] would doubtless have been adopted

[1] *Vide* Orme "Historical Fragments," p. 43.

Sir George Birdwood and H. Taylor speak of this tendency.

[2] Factories were not altogether unknown. Abul-Fazl describes them as "Karkhanas." Bernier in his Travels speaks of such large "halls" for goldsmiths, embroiderers, painters, manufacturers of silk brocades and fine muslins (p. 259). Taylor speaks of Malboos Khas Khudies working at Dacca.

by the Indian producers just as it was the case with the "clothiers" of England.

Though the personal relationship between the master and the labourer existed under the mahajani system of production still the lack of industrial efficiency on the part of the mahajan and his total unfamiliarity with industrial implements and complete bankruptcy of industrial ideas are mainly responsible for the stagnant and almost stationary character of our productive processes in several of the industrial arts for which ancient India has been duly praised. Economically speaking they are only middlemen living parasitically on the profits of another. Even in the matter of agricultural financing by the mahajan the results are not laudable.

The mahajan who finances the mochi takes in return the manufactured shoes and sells them himself.[1] As tanned leather has to be imported from Calcutta for the purposes of being handled by the mochi the mahajan takes advantage of this fact and exploits the mochi.[2] Hence the mochi has not nearly so strong a motive for exerting energy, skill and care as he would have if he were working on his account. In Calcutta there are a number of shops

[1] The following limitations of the mahajan can be easily noticed. He is not interested in agriculture itself and questions of the improved soil and improved husbandry do not appeal to him. He is not a sympathetic banker and demands payment regardless of the plight of the agriculturists and their ability to make small payments. His rates of interest are very high. There is no guarantee of the continuance of the financial relations of the customer and his banker. His other defects are pointed out in my Study of the Indigenous banker in my book "Present Day Banking in India," Calcutta University publication.

[2] *Vide* Briggs, "Chamars," p. 224.

"Rates of interest are exceedingly high, being from 24 to 48 per cent. on larger loans and 75 per cent. on petty loans."

of leather workers in the Bentinck Street and Lower Chitpore Road. Here skilled workers are employed and these use the sewing machines and improved appliances in the matter of cutting out, sewing and dyeing leather but most of these Chinese bootmakers busy themselves with sheepskin and they have a prejudice against leather that is not soft to the touch. The mochis manufacture shoes out of "triple rejections" which cannot be shipped elsewhere and this is one reason why their shoes do not find a ready market.

Thus the unprogressive character of the indigenous leather industry, be it the village chamars' tanning business or the mochis' manufacture of boots and shoes and other articles is chiefly due to want of capital and a sound economic organisation of the business. The grip of the middlemen is to be felt in this business no less than in the case of the other cottage industries. Co-operative credit and sale societies may do something to better their position [1]

Another important cause of the inferiority of Indian-made leather, be it turned out by the village tanner or the scientifically working organised tanneries, lies in the quality of the hides and skins that are handled by them. There are certain defects inherent to the conditions under which Indian cattle are bred up and these cannot be eradicated or remedied to any extent by any amount of scientific skill. The quality of the raw material used in manufacturing determines the quality of the finished product. Hence in any scheme for improving the industrial organisation of leather business much attention

[1] The position of the chamars can be bettered if a real social programme is also undertaken simultaneously with any attempts made to improve their economic position. A moral and religious programme to check drunkenness and immorality is also necessary.

should be paid towards the selection of the most suitable raw material. To expect capital and science to make up the deficiencies due to nature is too unwise.

The majority of the Indian cattle are weak, lean and poor in growth.[1] Hence the raw hides lack in strength, compactness and thickness. They are often spoiled by sores and skin diseases. The religious scruples of the Hindus make them averse to killing cattle and there is no slaughtering of animals for the hides alone. The supplies are dependent on the meat market, *i.e.*, slaughtered hides and a part of the supply is due to natural causes such as death, old age, sickness, or starvation. It is only the slaughtered hides that are carefully flayed and which are free from branding that afford good material for the tanner for chrome tanning always requires the best hides and skins.[2] The majority of the cattle are not of a high grade. They generally suffer from bad feeding and diseases. [3] Disease tends to waste the hide as well as the body of the cattle. "There is nothing in this country that can equal the English ox, stall fed and slaughtered in prime, as a basis for the operation of the tanner." [4] The male cattle are always used

[1] They differ a good deal according to locality and breed. Larger hides come from the Punjab, North of the United Provinces and parts of Bombay and Madras. In Sind and some parts of Madras the stud bulls are of superior quality.

[2] Of course a dead hide if flayed carefully and sent "green" into the hands of a tanner also affords good leather.

[3] As Mr. B. Chakravarti rightly observes, "Not only is it necessary to improve the breed of cattle but something must be done to stop the immense waste of cattle food and manure which is going on now on account of the wholesale export of oil seeds. Evidence before the I. I. Commission.

[4] There are some breeds both of heavy draught cattle and of cattle for quick road work, as well as certain good milking strains, which are maintained by the observance of sound principles of

as beasts of burden[1] and they are always worked until they drop dead and this long service in cart and plough is recorded in galls and sores on their hides. The welfare of cattle is important to the agriculturist as well. It cannot be improved unless there is better feeding. At present they subsist on fodder composed of the stalks of over-ripe grain crops and this is not of sufficient nutritive value. The common grazing land of the village is inadequate to supplement the poor quality of fodder. Irrigation and the cultivation of irrigated fodder crops present the only real solution to the fodder difficulty. The present cow-protecting societies are patronised more on religious grounds and have not penetrated into the interior of the country. On account of "the growing rigour of forest laws and the injurious process of diverting grass land to food crops to meet the higher cost of living, a sufficient supply of hay for the diminishing number of cattle can be obtained at great cost only."[2] Co-operation can be useful to the agriculturist in this direction also.[3] Co-operative haystacks can be worked on the same principles as the "Dharmagolas." Other devices for maintaining a store of fodder must be immediately tried. It should even supplement experiments in economic fodder-growing and similar other work that is being attempted on the Government farm at Rungpur.

cattle breeding. But as regards the great mass of Indian cattle no attention is paid to such matters. *Vide* Report on Hides and Skins, Imperial Institute publication.

[1] Of late the development of motor transport is affording some relief to the suffering cattle.

[2] *Vide* Journal of the Indian Economic Society, March, 1920, p. 42.

[3] In Switzerland there is the practice of cattle-insuring. This system should be adopted on an extensive scale in this country. The insurance policy should be kept alive so as to enable the farmers to utilise the sum for substituting the lost animal

As Mr. Watt says, "the quality of hides and skins is greatly influenced by the conditions under which the animal has grown, the nature of the food, the variety of breed, climate, the state of its constitution, its age and the time of the year at which it has been slaughtered." [1]

Branding of cattle is another process which deteriorates the hides.[2] The brand usually consists of double semi-circular lines covering the best part of the hide and extending to the shoulder. The superstitious Hindus believe that branding is efficacious in keeping away evil spirits and preventing disease such as staggers and fits. This branding reduces the value of the hide by one to three rupees each hide. Sometimes the whole hide is rendered useless by branding.[3] The use of small brands as suggested by the Indian Munitions Board to the owners of cattle will enhance the economic value of the hide. Where branding is resorted to for purposes of identification a small brand on the shank or on the forehead or even on the horn or hoof, should be sufficient.[4] The branded hide when tanned would produce

[1] *Vide* A. Watt, "Leather Manufacture," p. 28.

[2] This barbarous system of branding is prevalent in South America as well.

[3] *Vide* Evidence of Mr. G. A. Chambers (I. I. Commission): "Many lakhs of rupees are annually lost in Southern India in the value of tanned hides exports through the pernicious practice of vicious branding. The custom exists to a certain extent in North India and steps should be taken to limit the evil. In certain districts the value of the hides is considerably depreciated through bad flaying and this might be easily prevented if action were taken by the authorities controlling slaughter houses." Fully 10 per cent. of the country's output of hides is branded and this loss can be easily checked by educating the cattle-owners as to the value of the hides.

[4] In New South Wales a bill is to be shortly introduced in the Legislature to indicate the size and position of the brands so that the

ghastly marks on it and the strength of the hide is reduced at those places where the brand is put. Hence the value of such hides is very low.

The flaying of hides is not properly and carefully done.

The hides usually suffer from butcher cuts which penetrate the substance of the hide. A large amount of flesh is usually left on the hides and notwithstanding the cure, putrifaction sets in, in the thick portion of the flesh and extends to the hide. Sometimes an excessive amount of salt is added to increase the weight. Some of the defects[1] such as bad flaying, insufficient curing, negligent scraping of flesh and of excessive salting are common to the

economic value of the hides may not be destroyed. In India such legislation will be futile because the branding of cattle is sometimes resorted to to prevent the chamars from poisoning the cattle or the ignorant villagers wish to make the cattle ugly so that the Evil Eye may not fall on them. Even the tender horns are burnt out so that the chamars may not make glue out of them. If the economic position of the chamar is bettered then the cattle-owner will not be suspicious and destroy the value of the hides and skins by branding them. A wealthy chamar, he thinks, would not poison his cattle. This old established custom, prejudice and ignorance have to be fought against.

[1] It would be interesting to record in this connection, the famous description of Mr. Fraymouth which gives one an idea of the way in which a dead hide is prepared. Although the conditions in the Central Provinces are not exactly similar to those in other parts of India, I may here describe the usual way in which the hide from a cow that has died is treated. The animal is taken ill, say, with colic. It is brought in to near the homestead and there attempts are made to doctor it. The remedies usually fail and the animal gradually dies so gradually in some cases that its hide actually rots before the animal is dead. We must realise that in no case will the owner put the animal out of its misery unless in rare cases when a non-Hindu hide merchant is the owner. When quite dead or at the moment when the carcass becomes objectionable the local chamar is called on to remove it. More often than not the low-caste chamar may not enter the precincts where the carcass lies. Ropes are tied to the animal's

Dacca kips, *i.e.*, produced from the Dacca and Eastern Bengal Districts. The kips coming from North-West Bengal are better prepared than the Dacca kips. The quality of the Dacca kips needs improvement to a great extent by trying to remedy the above defects of bad flaying and bad curing. The Dacca kips have established their reputation as a useful class of hides, being generally of good pattern and fairly well-grown but these defects are standing in the way of their popularity in the foreign markets." From the producer's standpoint it is necessary to remove these defects in the raw material so that he can satisfy the consumer's demand and obtain better prices for his finished product.

Another cause for the steady decline of the indigenous leather industry during the last 50 years lies in foreign competition. The village tanner finds it impossible to pay higher prices than before in order to retain the raw hides and skins. It is not only the agents of the exporting houses that compete with him but the agents of some

legs and it is dragged on its side for perhaps half a mile. This custom is the cause of the commonest fault on the dead hide, *i e.*, "scratched" or "rubbed grain." The chamar does not always flay the animal at once. More often the carcass is visited by carrion birds, which peck at the hides until it is covered with scratches and tears before it is flayed. The hide is taken off recklessly with resultant butcher cuts and it is allowed to dry as it is without scratching or cleaning. No subsequent care is taken to store the hide properly and so eventually it reaches one of the centres where hide dealers wet it down, stretch it and smear it with salt and plaster it to cover the evident faults.

It is these hides that are eventually sorted out and baled in Calcutta for export. It is only from published export figures that we can estimate the number of hides that India produces. But from my experience in my states I feel quite certain that for every hide that reaches Calcutta at least one more hide is spoilt completely and is thus lost. At the lowest computation this means a loss of half a million pounds sterling per annum."

of the organised tanners pay a better price for hides of good quality. No one is really sorry, except perhaps the chamar himself, for the loss of his business. It is recognised by experts, that village tanning involves an enormous loss to India. As A. Carnegie says, " the village tanner spoils good material for bad leather." Unless better processes are learnt by him the village tanner should not be allowed to undertake tanning business with his primitive tools and old-fashioned knowledge The united competition of these agents has raised the price of raw hides by almost cent per cent. and this aggravates the dependence of the village tanner and the leather workers on the local mahajans. The villager finds it profitable to waive the right of the chamar to the hides and to employ him as an agent in disposing them of and he purchases leather in the open market from the agents or the middlemen of the organised tanneries and hands it over to the chamar to make up his requirements.

In addition to this the foreign competition of manufactured articles from outside India seriously limits the sale of the products of the mochis and the leather workers. Foreign competition is seriously interfering with the indigenous industry like a double-edged sword. On one side the country is being denuded of its stock of raw materials, *i.e.*, hides and skins are exported. On the other side imported manufactured articles compete with locally made products. Foreign made goods, *i.e.*, boots and shoes are driving out the local products from the big towns. Sixty years back these were to be found only in the largest towns particularly in the seaports but now almost all villages which can boast of a bazar possess a stock of them. With improvements in communication, the growth of civilisation and change in fashion the foreign manufactured articles have penetrated to the interior. Calcutta-made shoes

are to be found widely distributed in the whole of the interior of Bengal and the village mochis country-made shoes are rapidly losing ground. The mochis find it impossible to go on as independent workmen and from this superior rôle they are reduced to the subordinate ranks of wage earners and earn their livelihood by migrating to Calcutta for mending old shoes and working as grooms.

German and American competition was very keen and active with their efficiently organised and thoroughly equipped leather industry, they have effectively strangled the unorganised leather industry of this country. Foreign manufactured goods, specially the boots and shoes, by their attractive shape and superior finish, find a ready sale everywhere. The want of finish in the Indian-made leather goods is a glaring defect and is patent to every observer.[1] It is this that is killing the indigenous manufacture of shoes and is proving detrimental to the Indian leather industry.

In the manufacture of those articles where there is no foreign competition the mochis still find occupation and in this respect their lot seems to be more fortunate than that of their co-workers in leather—the chamars. The manufacture of country harness, native saddlery, water carrier bags, whip thongs, water buckets, oil and molasses jars, pouches and baskets is still left in their hands. The

[1] *Vide* L. P. Watson's evidence before the I. I. Commission : "The average Indian workmen acquires a certain dexterity in the handling of tools with remarkable rapidity but he seldom rises to the height of a skilled workmen. This is due to lack of interest in the work, want of individual taste, and lack of attention to details. The want of finish in Indian made leather goods is a glaring defect." He suggests good pay for good work and a system of bonuses for exceptionally good work and this would improve to a certain extent the skill and efficiency of the Indian labourer.

articles required in connection with agriculture, *i.e.*, hide ropes, water buckets and traces must be very cheap and foreign manufactured articles have not made their appearance in this field as yet. The preparation of musical instruments is still left to the mochi. But it is quite possible that just as the taste for European-made shoes has injured this shoe-manufacturing trade the production of these articles by organised factories doing business in Calcutta may possibly affect him seriously. Light iron buckets are fast coming into popularity with the agriculturists and it is lessening their demands for water buckets made of leather.[1] Hence it would be unstatesmanlike if this important industry is allowed to follow its own course. No time should be lost to organise this industry on scientific and economic lines and inaugurate the leather industry in its proper place among the productive industries of the country. Indian buffalo leather might not be quite as good as the best English oxhide leather. Certain classes of our raw materials might not be of a good quality. Our climate might not be very favourable for the production of well tanned leather. But for practical purposes the Indian manufactured leather is good enough and good quality leather belting and saddlery are being turned out by the Cawnpore Government Factory. Similar things can be produced in Bengal provided the manufacturing problem is tackled in right earnest by competent capitalists possessing the necessary skill and organisation.

[1] The increasing use of substitutes for leather, notably that of rubber, has to be considered. But the price of rubber is determined by its cost of production which can never be so low as that of hides and skins. So long as people consume meat, hides would be produced as a by-product and sold at a cheap price.

CHAPTER IV

The Export Trade of Raw Hides and Skins

"If trade is to be profitable to any country in proportion to its volume it is essential that it should busy itself with the import of such commodities as the land is incapable of growing or producing and with the largest export of such commodities as the land can and does produce."—*H. Hirst,* "*Some Business Aspects of Tariff Reform,*" p. 3.

It has been remarked already that the agents of the exporting houses have raised the price of the raw material thus making it impossible for the village tanner to have possession of the good hides and skins for his business. A detailed study of the development of the export trade in raw hides and skins affords valuable lessons which cannot be ignored by any serious student of the leather industry and these have to be borne in mind by those industrialists who aim at the regeneration of this decaying industry or modern entrepreneurs who aspire to build factory-type tanneries and manufacturing factories for the production of boots and shoes, belting for machinery, bags and portmanteaux and other fancy articles of leather.

Sixty years ago there was no export of raw hides and skins.[1] The whole supply was locally used up. But

[1] Statistics of export trade in raw hides and skins are available from the year 1862. Mr. Moreland says, "there was no extensive export of hides and the import of various finished articles and in the time of Akbar India as a whole was self-contained in this industry." *India at the time of Akbar, p. 162.*

Muhammadan middlemen have taken to the work of collecting the hides and skins in the interior and exporting them to Calcutta. From thence they are shipped to foreign countries and to other provinces of India. The exportation of raw materials has steadily increased as shown by the figures of the Sea-borne trade.

Originally and until 1890, the British tanners' used to absorb large quantities of raw Indian kips and no less than 3,500,300 Indian kips were tanned annually in Leeds centre alone. But from 1890 the swing of the pendulum was towards the Continent of Europe, Germany and Austria taking a large portion, about 64 per cent. of the Indian kips. At the outbreak of the war, exports to the United Kingdom diminished considerably and for all practical purposes a ring of German exporters controlled the whole export trade in raw hides.

The victory of Germany in the Franco-Prussian War led to a great activity on the part of German Industrialists

[1] The following table from the Report on hides and skins shows this fact clearly (Imp. Inst. Bulln.). Raw kips *from* Calcutta *to* the United Kingdom.

Year.	Number.	Year.	Number.	Year.	Number.
1887	3,882,443	1892	1,038,417	1900	433,636
1888	3,522,956	1893	1,437,317	1905	174,888
1889	3,915,367	1894	1,591,011	1910	98,922
1890	2,694,554	1895	1,424,719	1911	135,136
1891	2,644,148	1896	681,164	1912	39,583
				1913	17,530

in all directions. From 1875, the German tanners began to buy East Indian kips in large quantities. Not satisfied with progress of this chrome-tanning industry Germany levied an import duty on manufactured leather while admitting freely raw hides.[1]

Thus it succeeded in developing the tanning industry to a great extent. In addition to this important fiscal measure which aided them in the building up of their leather industry, they tried to monopolise the whole export trade. The Hamburg and Bremen merchants practically monopolised the whole export trade and themselves sold them to tanning industries.[2] They would oust any German tanner who bought otherwise than through them and boycotted any Calcutta exporter who sold in any wise but through them. This state of things was largely facilitated by the British tanners confining themselves to high classes of tanning work and concentrating their attention only on heavy hides.[3]

[1] Germany progressively increased her import duties on imported leather. In 1876 it was equivalent to 6 *s.* 1 *d.* per cwt., *i e.*, approximately 6 per cent. *ad valorem.* In 1878 it was increased to 10 per cent. and in 1906 it was raised and a specific duty was imposed varying from 15-8*d.* to 2¼*d.* per lb. In addition to this tariff policy special shipping advantages were granted for the export of raw hides from India direct to Hamburg or Bremen.

[2] *Vide* the evidence of Messrs. N. T. Chary, A. Forbes, M. S. Das, G. A. Chambers, and G. C. K. Peterson and others before the I. I. Commission. "The German hold on the trade was consolidated by a combination in Calcutta of the seven principal German exporting firms."

[3] Mr. W. A. Fraymouth says, "Prior to the German interests in this trade it had been the custom to send all the hides direct to London, there to be auctioned and dealt with by the hide experts of London, whose firms used to take the profits on sorting and classification, but even there I am told the bulk of the low class

Hence the trade in lighter hides, was left practically to German hands and they took full advantage of their situation and trade opportunity. German demand specially the army demand was very great and this rendered necessary extensive purchases of raw hides in India. Besides the German manufacturers utilised every kind of leather for some purpose or other. Hence they systematically purchased all kinds of unmanufactured leather goods as well as bad hides. They bought not only the "kills" and [1] finer quality of hides, but also "Commons" and badly cured dead hides and exported them to Austria Hungary, Italy and Spain. A large part of their tanned material was sent to England in the from of box-calf and for making soles for light

hides of India went to the Continent where by special means big profits were made. The British merchants thought there were no profits in low class, hides."—*Evidence before the I. I. Commission.*

[1] For export purposes the raw hides are classified under four headings: (1) slaughtereds, (2) deads, (3) rejections, (4) double rejections. The hides of animals which are slaughtered fetch better prices than those which die a natural death and they are distinguished commercially by the terms "kills" and "commons." Sometimes dead hides of fine quality are very often included in the slaughtereds. A very small percentage of Indian raw hides are from actual slaughtered animals. These come mainly from the principal slaughter houses in large cities and the army slaughter houses at the big military centres and also from Saugor, Agra, and other towns in the United Provinces and Behar where cows are killed for the jerked meat trade with Burma. The very finest of the slaughtered hides are known as the commissariats, a designation due to the fact that for many years the Indian Government purchased large quantities of cattle to supply the British troops with beef, the hides of which are branded with the letter "C." The India Government no longer buys cattle but, the term still stands for the best quality of slaughtered hides.

boots and shoes.[1] About twenty months prior to Germany and Austria's declaring the war they deliberately accumulated in anticipation of the war a large stock and this ove rtrading on their part led to a large increase in prices throughout India. An almost fifty per cent. rise was registered in the buffalo hides.

The German exporting houses of Calcutta, *i. e.*, Schroeder Smidt & Co., employed German employees in the up-country slaughter houses to buy from small up-country firms. The majority of the export hide buyers were either Germans or German Jews and the average Englishman would not handle this business.[2] Consequently they possessed a complete knowledge of

[1] The following table shows the export of hides and leather *from* Germany *to* the United Kingdom :—

(*Value in Pounds Sterling.*)

Year.	Hides undressed.	Leather.
1890	168,043	292,341
1900	201,358	564,342
1910	251,706	2,233,304
1913	158,188	3,153,648

Vide Report on Hides and Skins and Leather published by the Indian Munitions Board.

[2] *Vide* the evidence of Mr. J. C. K. Peterson before the I. I. Commission: "The Hide trade has always been looked down on. It is not a particularly savoury business. It has had in the past a bad reputation. There is often much dishonesty in the method of curing the hides in the moffusil, the fleshers and skinners often adding earth and other substances to the salt used for curing or skinning the hides badly in order to increase the weight. There have also been many complaints of a gross nature brought against the collectors of the hides in the districts. I may refer to the agitation as to the practice of skinning goats alive in order to procure larger skins and to the outbreak of cattle-poisoning that occurred some years ago in Behar. For these reasons the ordinary English firms would not touch the trade."—*Bengal, Vol., p. 736.*

the local hides and always acquainted themselves with local ways of buying. It must also be acknowledged that the German Exporting firms tried to improve the methods of flaying and curing hides by careful teaching and demonstration of improved methods of work which would enhance the quality of the hides and thereby their market value.

With the commencement of hostilities between Germany and England in the year 1914, this export trade in raw hides came to a standstill and large stocks accumulated in Calcutta, Agra, Cawnpore, and other hide collecting centres of North India giving opportunities to the Madras tanners to buy the material and export it in a semi-tanned condition to the United Kingdom. Here there was a great congestion of stock as enough curriers could not be had to deal with the rapidly accumulating stocks. Gradually the English tanneries expanded to cope with the increased supply of raw hides from India.[1]

The whole export trade of raw hides was monopolised by the Government of India by August 1916[2] and the

[1] The United Tanners' Federation undertook this business on the stipulation that an export duty on raw kips with a remission in favour of tanners throughout the Empire, would be imposed. Another stipulation they made was for the removal from the export trade in raw hides of all firms with German or Austrian connections.—*Report on Hides and Skins, Impl. Inst. Bulln., p. 10.*

[2] From August, 1916, the control of raw hide export trade became closer. It was confined at first to partial restriction on the export of hides of army weight but in June, 1917, the Indian Munitions Board undertook direct purchase of raw hides for the British War Office and the Italian Government. As the balance of hides of army weights and selections were required for Madras and Bombay tanners, export on private account except of light weight hides and certain classes of inferior hides practically ceased. The difficulties of obtaining freight and the high cost of it when obtainable practically militated against

total quantity was shipped to the War Office of Great Britain. The Indian Munitions Board increased the price for good leather and took prompt steps to prevent adulteration and improper weighting. The tanners in India were given huge orders on a scale which encouraged them to reform their methods and a rigid standard of high quality was insisted upon in their work. By such improvised arrangements [1] about three-fifths of the upper leather used for army boots was made out of raw hides purchased in India. The control of the I.M. Board resulted in much good to the export trade in raw hides and Indian kips, the development of the tanning industry [2] and the undertaking of systematic research to test the suitability of the different tanning materials of India at the Maihar Research Tannery in the Central Provinces and an attempt was also made to manufacture the tanning extracts. The co-operation of the Forest Department was also enlisted and it was specially deputed to collect

export of the lowest quality of hides. In normal times a freight rate of half a penny a lb., was small in comparison with the value of raw hides but when that rate became 4 to 5 pennies a lb., it obviously made impossible the export of lowest grades. The disappearance of the export market for the lowest grade hides was one of the inevitable consequences of the war, p. 38. (Report on Hides and Skins published by the Munitions Board).

[1] For methods employed in achieving this refer to page 52, Report of the Trade in Hides and Skins, I.M. Board publication.

[2] "There was much improvement effected in the tanning business of Madras. Before the war there were eight or nine separate tannages recognised. But the War Office classified them under 4 headings :—(1) Primes, (2) Best, (3) Good, (4) Ordinary. Each of the first three being subdivided into two classes according to growth and spread." *Vide* Cotton's Handbook of Commercial Information for India. Also the address of his Excellency the Viceroy at the opening meeting of the Imperial Legislative Council's Autumn Session at Simla in September, 1917.

promising materials which may be used as tan stuffs. Arrangements were made with the railways for their distribution at uniform and low freight rates. Apprentices were taken at the Allahabad Factory with a view to teach them the scientific methods of tanning.

"Out of evil cometh good" says the Bible. Though "War is a regular hell" and a social operation of the most dangerous type, yet some beneficent results have been reaped. But for the requirements of the War Office, the Indian Government would not have assumed the control of the raw hides export trade and sufficient attention would not have been paid to the leather industry. This Government action[1] has left us richer in as much as far-reaching and continuously healthy influence has been exerted on the course of the leather trade in this country. The export trade has been wrested from the enemy hands and prominent British firms have interested themselves in the leather business.

Of course it led to uneven development of some aspects of the leather trade while sufficient attention was not paid to other aspects of the leather trade. The exigencies of the war led to the concentration of attention on the tanning of hides and that of skin tanning has been neglected and it had to be stopped to direct the attention of the skin tanners towards producing the needed half tanned hides for the British War Office. Again the Government orders for boots and leather equipment led to the development and prosperity of the Cawnpore firms to an unprecedented extent. This favouritism shown to European manufacturers is largely responsible for their prosperity, their

[1] Government control of exportation is not considered desirable by economists and Government interference of trade has come to be associated in the public mind with dishonesty and favouritism.

advancement and technical improvements. Had a small part of the orders been distributed among the Indian leather factories also, much good would have resulted. There would have been an all-round improvement of the different factories, Indian as well as European engaged, in the leather industry.

Again the Government of India has concentrated its attention on the production of materials necessary for bark tanning. Chrome tanning has been left to private individuals with the necessary result that the progress is slow [1] and it would not have been the case if Government pioneering did not abruptly cease at a prematurely early date. The chrome tanneries are no doubt producing good quality black and brown box-sides for which there is great demand in Great Britain. But the exhaustion of the Babul bark supplies for the Cawnpore factory compelled the Government to pay more attention to the discovery of cheap tanning materials and for chrome tanning very little has been done by the Government experts. More attention should be paid to this subject also.

Coming to the export figures of raw skins one finds that it consists of the undressed skins [2] of smaller animals specially, the goat, the sheep and the calfskins. Till

[1] "Chrome tanning has so far made comparatively little headway in India chiefly owing to the fact that its processes are highly technical, requiring chemical knowledge and elaborate equipment of machinery." *Vide* Appendix D. I. I. Commission.)

[2] "Unlike hides, the majority of skins are derived from animals which are slaughtered for food and so these pelts compare favourably with skins of other animals of other countries." "*Vide* A Chatterton's Monograph on Leather in Madras.

He also points out that skins are in good condition from February to September but during the rainy season the animals become feverish through exposure and the pelts become thin and papery. Buyers for export generally cease operations during the cold weather.

1912, calf skins were included in all official statistics under the heading of raw hides. But from that year this item was separately recorded and the following table shows the export of calf skins from Bengal :—

Calf skins exported from Calcutta.

Year.			Tons.		Number of skins
1917-18		...	624	...	537,896
1918-19		...	376	...	301,878
1919-20		...	596	...	474,889
1920-21	Buffalo	...	208	...	128,987
	Cow	...	176	...	95,892
1921-22	Buffalo	...	120	...	60,963
	Cow	...	54	...	49,764

Before the war 80 per cent. of the calf skins exported from India came from Bengal ports and the remainder from Karachi. This trade was captured to a great extent by Karachi. In the first three years of the war the share of Bengal declined to 40 per cent. and that of Karachi increased to 60 per cent. of the total exports from India. Our calf skin leather is not so famous as the French calf skin leather. In France the calves are usually slaughtered when about 5 or 6 months old. Superior calf skin leather is generally used for the uppers of shoes and for boot fronts and book binding.

The great portion of the pre-war exports were absorbed by the United States, Italy, Spain and Austria Hungary. During the war time the chief consumers were the United States, Italy and Spain. The United States was always the largest market for India's raw calf-skins.

The chief feature of the export trade of raw goat skins [1] is this. It is more evenly distributed among the different provinces than that of raw hides. Bengal shares about 40 per cent. of the total trade in normal times. During war years the export of goat skins from Bengal declined and that of Bombay and Sindh increased but of late Bengal seems to have regained her lost position. Goat skins are specially useful for making gloves or as upper leather for foot wear.

Export of raw goat skins by Provinces.

Provinces		Percentages (Weight)					
		1912-13	1913-14	1914-15	1915-16	1916-17	19121-2
Bengal	...	45·6	45·3	41·7	40·	27·7	45·
Bombay	...	29.1	30·2	33·4	31·3	36·1	26·
Sindh	...	15·7	18·5	20·6	22·3	30·5	16·
Madras	...	9.4	5·9	4·3	6·4	5·7	13·
		99·8	99·9	100·	100·	100·	100·

Coming to the trade classification of the Bengal goat skins the following are the recognised classes. (1) Daccas coming from Eastern Bengal and Assam. The skins are cleanly flayed and possess medium hair. (2) Muzaferpores are those coming from West of Behar. These skins possess fine grain and have fine hair. They afford good material for turning out glace kid. (3) Durbhangas are those coming from Terai. These skins possess

[1] "The skins of male animals emit a strong smell which does not disappear even from some finishes of the leather. The skins of castrated goats are free from this drawback and these command a higher price in consequence"—Leather World, 1918, Vol. 10, p. 419.

coarsish grain and have coloured hair generally of a brown colour. (4) Dinajpores come from the districts between Durbhanga and Dacca. These are good heavy skins suitable for glace kid. (5) Dacies are from Middle Bengal. They are of a mixed kind. (6) Patnas come from Behar. They afford ideal material for glace kid. Chouri Chauras are the lowest grade of Bengal goat skins. All these classes are usually styled "Dacca Sorts." They are shipped generally in bales of 500 pieces or in casks containing 125 to 500 pieces.

Here as in the case of raw calf skins the United States of America was the largest market. The United Kingdom, France, Holland and Germany used to have a share in this trade. Although the United Kingdom absorbed a large portion of these goat skins they were re-exported to the United States. Only $\frac{1}{5}$ of these raw skins was utilised locally and the remainder despatched to the United States. The United Kingdom not only re-exported the goat skins but imported manufactured glace kid from America in return.

Raw sheep skins are exported to a small extent from Bengal. Their inclusion in the trade forms only a small portion of the total exports of raw skins from India. Bengal's share is 5 per cent. of the total exports from India. Karachi exports about 75 per cent. of the total and Bombay 20 per cent. of the total. Sheep-skins afford a variety of leathers. Here also the United States [1] was the chief market and her share was 90 per cent. of the total exports from India.

[1] This wholesale concentration of raw goat skins exports to the U. S. A. was due to America's specialisation in the manufacture of glace kid. Many individual American firms produced glace kid far in excess of any British firm. A few years ago there was over-production in this branch in America but during the period of the war it

Another characteristic of the export trade in raw hides and skins is its fluctuating character. As Dr. Watt observes "The traffic in hides and skins is subject to fluctuations concomitant with the vicissitudes of the seasons and the prevalence of animal diseases." During 1899-1901 owing to the severe famine in Western India there were many raw hides exported out of the country. The exports increase and their price is lowered to a certain extent. The value of the bye-products like horns, hoofs also fall to a great extent. In times of plenty the agriculturists have something to feed the cattle and the exports of hides and skins naturally decrease. The value of the bye-products increases.

began to prosper again, p. 10. (Report on Hides and Skins, Imp. Inst. Bulln.)

Several of the Philadelphia tanneries turn out enormous quantities of skins and their daily output ranges between two to three thousand dozen glaced goat skins. This is solely due to the co-operation between the engineer and the practical tanner. Another factor responsible for the success of the American machinists is the possibility of obtaining skilled labour to look after the machines.

There is a humourous saying that "Where a goat is wandering, there exists an American for him to die." From this it can be gathered that there is an intensive demand for goat skins on the part of the American tanners.

CHAPTER V

Lessons from the Export Trade of Raw Hides and Skins

"I beg to record my strong opinion that in the matter of Indian Industries we are bound to consider the Indian interests firstly, secondly and thirdly—I mean by firstly that the local raw products should be utilised, by secondly that industries should be introduced and by thirdly that the profits of such industries should remain in the country." *Sir Frederick Nicholson.*

Economically speaking the export of tanned or semi-tanned hides and skins in place of raw can be a distinct gain. The sale of tanned hides and skins in foreign countries would enable the Indian manufacturer to realise a higher pecuniary return than the sale of raw hides and skins. This can be re-invested in raw hides and skins, .. and the development of the leather industry. In this case there would be an increase in the national dividend of India as the raw material would be manufactured in our country and the employment of capital would give greater encouragement to the productive labour of the leather manufacturing and tanning industry. If the raw material can be successfully utilised, it will enable us to dispense with the tribute we pay to the foreign manufacturer of our raw material, to his banker and broker, shipper and insurer and other middlemen too many to be enumerated and identified. This serious indirect and imperceptible form of taxation can be remedied.

Not only does this exportation of raw hides and skins hamper the progress of the tanning industry and other

branches of the leather industry but it would increase the scope of exploitation on the part of foreign countries which utilise our raw hides and skins as the basis of their leather industry. This "double drain" as the economist puts it, namely, the loss of industrial power and the profits of the foreign manufacturer can be checked. Besides the possibility of checking this double drain the cost and risk of transport of large quantities of bulky raw materials are obviated. It renders unnecessary the carriage of raw materials which form a large part of the weight of raw hides. The establishment of tanneries in districts where hides and skins and tanning materials are available and where it is easy to gather suitable labour will enable the exportation of tanned hides and skins in place of raw materials. But this devoutly wished for consummation can never be attained under existing fiscal conditions. The American tanners formerly used to "shoot at us from behind the edges of more than 20 per cent. import duty" as Mr. J. Schultz points out in the "manufacture of leather."[1] Other countries levy import duties against tanned material from India so as to render the export of Indian tanned skins impossible. The Home market is limited and unless new markets in Canada, South Africa, Europe, America, and Australia are tapped it would not be wise to undertake the tanning of all the raw hides and skins in India alone. It is true that since the war time new markets have been tapped in Mesopotamia, East Africa and Strait Settlements.[2]

In the case of raw goat skins India possesses a partial monopoly and as the largest exporter of the best goat

[1] At present there is no import duty on manufactured leather entering into America.

[2] *Vide* Evidence of Mr. B. M. Das before the Indian Fiscal Commission.

skins in the world.[1] If any foreign country were to refuse taking tanned skins or discriminate unduly against India's tanned skins a little firm action on the part of the Government of India can easily rectify this and there is no reason why India should not take up the tanning of the whole of her raw goat skins.

India's position is not so strong as in the case of her raw hides.[2] She has no monopoly of this article. Indian hides enter into competition in the world's market with the products coming from Java, China, Argentina, East Africa, West Africa, Australia and the U.S.A.[3] This fact seems to have been lost sight of by the Committee of the Imperial Institute which recommended the imposition of an export duty on raw hides. It says "There is no excess of hides in any of the World's markets and that for many years before the War the price of hides has steadily increased. In these circumstances there can be little doubt that raw Indian kips will always be in good demand and will realise their value in relation to world's prices. The actual change of position to Indian producers would be only that instead of their produce being purchased from them by German or Austrian firms the raw kips would be bought exclusively by British firms, competition among whom would be at least as keen and as likely to secure a fair price to the Indian

[1] *Vide* the Report on hides and skins—Imperial Institute Bulletin. It remarks that the world's production of raw goat skins is not equal to the demand and it would be advantageous if India increases the quantity she produces.

[2] A distinction has to be drawn between "heavy" and "light hides." India produces a great proportion of the world's supply of light hides. These cannot profitably be replaced by "heavy ones."

[3] *Vide* the Evidence of the Calcutta Hides and Skins Shippers' Association before the Indian Fiscal Commission.

producer as it did formerly in the case of a strong combination of enemy firms. So far as great Britain is concerned the British tanner would be in a position materially to increase the British production of leather, whilst the British manufacturer of boots and shoes and leather goods would purchase more British tanned leather in place of foreign tanned imported leather."[1]

It was not only at the instance of the British tanners' suggestion that an export duty was levied but almost all Indian industrialists concerned with tanning industry suggested the retention of the Indian raw material for their own tanneries by levying a duty on raw hides exported from India.

The Government of India evidently with the object of protecting the tanning industry of India[2] and in their anxiety to ensure the tanning of Indian hides and skins such as could not be tanned in India by the British tanners alone or those of the British Empire levied in 1919 an export duty at the rate of 15 per cent. on a tariff valuation basis, with a rebate of 10 per cent. in respect of hides and skins tanned within the British Empire. The first part of the duty was meant to protect the Indian tanning industry and the second part was meant to encourage the tanners of the British Empire.

Unfortunately, neither of their objects was achieved. The Indian tanning Industry has not developed to such

[1] *Vide* Report on Hides and Skins—Imperial Institute Bulletin, p. 11.

[2] *Vide* The report of the Indian Fiscal Commission which says "But the export duty on raw hides and skins imposed in that year was put forward frankly as a measure of protection for the Indian tanning industry. It also contained another novel principle by providing for a rebate on Hides and Skins exported to the Empire and there tanned," p. 14.

an extent as to absorb the whole of the raw material. Besides the tanners themselves realise that an export duty does not help them much while it restricts their business as exporters of hides and skins. The export duty has failed to divert the channels of trade and the British Empire does not absorb the hides and skins which were formerly taken up by the Continent of Europe and the United States. The tax only benefits the Government but it was not levied with the purpose of bringing in revenue. It is operating as a handicap on exporters of raw hides and skins. This method of helping the Indian tanning industry by an export duty on raw materials and the preferential clause are wrong in principle. It has failed to retain the high class hides which the Indian tanners were anxious to retain. It has injured the producer and has destroyed altogether the trade in lower class hides, making it impossible and unprofitable to collect the inferior hides which Indian tanners do not require.[1] The preferential clause has seriously limited the free distribution of the product and interfered with the entrepot trade in the United Kingdom.

The export duty has been undoubtedly acting as an injury to the export trade. The action of the export duty on hides is costing the country as much as it yields. Hides being a joint product with beef, if the tax were to be removed the cost of feeding the army would be lessened. The export duty has an adverse effect on exchange, weakening it and lowering the price level. Of the total world's supply India contributes a small portion only.

[1] *Vide* Report of the Indian Fiscal Commission, p. 108. Also refer to the evidence of the C. H. S. S. Association before I. F. Commission.

Another reason for the removal of the export duty is the fact that executive concessions are practically nullifying the intentions of the Legislature. "Taking the case of the export duty on leather out of 15 per cent. duty the exporter was allowed to pay 5 per cent. if he executed a bond for the remaining 10 per cent. which is to be cancelled on a certificate of Empire tanning. This certificate was to be produced within six months of the date of shipment at first. The period was extended to 12 months, then to 2 years and later on for a period of 3 years. The bonds have become a dead letter, the Indian revenue suffers, the tanning industry in India gets no help and the exported article easily gets its way out of the country. The economists' objection to the export duty is that it tends to destroy the foreign market and when once it is destroyed it would be difficult to build it up again as has been evidenced in the case of salt-petre. Sir John Strachey says "export duties enjoy the credit of having ruined the Indian trade in Salt-petre. In 1860 Mr. Wilson levied a duty of Rs. 2 per maund on Salt-petre. They were taken off in 1868 when it was too late to repair the mischief." The Government have at last wisely decided to lower it to 5 per cent. They have now come round to the view that protection to the leather industry can be granted by the retention of the existing duty on imported manufactured leather rather than by taking the export of raw hides and skins. The Government should remember that an imposition of export duties on raw materials although levied under the stress of budget demands or with the fond expectation of developing national industries, is in direct contravention of the principles of the economic unity of the world and interdependence of all nations is a higher ideal than economic self-sufficiency. But beyond this the interests of the exporters ought not

to be suffered to negative any measure that may assist in the rapid development of the leather industry.

The Government of India has levied an import duty on manufactured leather or finished leather goods imported into India.[1] This has been purely a revenue measure but still it can to a certain extent protect the Indian leather industry provided it has been thoroughly organised and efficiently equipped as the industries of the foreign countries. But as this has not been the case, the mild form of protection granted to the Indian tanneries and the leather manufacturers does not go far enough. The prosperity of the Indian tanneries has been due to war conditions and with the advent of peaceful and settled conditions in Germany, it will once more bid high prices for good quality hides and export them as before in spite of the export duty.[2] Thus if the tanning industry is at all to be developed and a promising leather manufacturing business is to be expected—there is no reason why it should not be established in Bengal as almost all accessories for a successful establishment of a tanning industry and leather manufacturing business exists in Calcutta itself—Government assistance should extend further in several ways besides the protective duties levied already.

The Government of India should realise that the tariff is only a negative measure though some countries consider it to be the most effective measure for promoting the economic interests of the country. Some amount of tariff protection will be wise as it will tend to off-set the

[1] It was raised to 15 per cent. in March, 1922.

[2] Mr. T. N. Ainscough says "Germany has resumed her trade connections with India already and quotes trade statistics to prove this." *Vide* Review on Prospects of British Trade with India. But owing to the French occupation of the Ruhr region there has again been a set-back to our exports to Germany.

temporary lead of the older industrial countries like America and Germany. Positive measures should be undertaken and these will go a long way in the development of industries. Economists[1] consider the following, namely, the local purchase of stores, the proper regulation of railway and steamship freight charges, the granting of bounties, subsidies, and concessions in suitable cases, the expansion of credit facilities, the compilation of trade information and the establishment of technical colleges—as the positive measures that are necessary for stimulating industrial development.

The Government of India should give the needed stimulus by an organised system of technical, financial and administrative assistance.

It must be said to the credit of the Government of India and specially the Department of Industries in Bengal that the possibilities of the leather industry have been fully realised. What the Indian Munitions Board did during the War time to develop the tanning industry has already been related on a previous page. The Director of Industries of Bengal started the Calcutta Research Tannery under the able guidance of Mr. B. M. Das and the work of the institution can best be related in the words of the Director of Industries himself. "The Calcutta Research Tannery was equipped with samples of up-to-date leather-making machinery, tan-pits, and lime-pits, laid out on the modern lines and a chemical laboratory of some considerable dimensions. The C. R. Tannery was

[1] *Vide* Dr. P. N. Banerjea, the Fiscal Policy of India. The Indian Fiscal Commission requires greater Industrial bias in primary education, the training of apprentices, the improved mobility of labour, manipulation of railways and shipping rates as all calculated to assist besides tariff in the task of industrial development," para. 122.

equipped with an Indian Foreman and a Research Chemist and labour chiefly found from among the apprentices who were being trained, and the tannery has tackled some trade problems and the best methods of treatment of leather have been discovered. It has gone a long way towards establishing the possibilities of turning out glace-kid in Bengal instead of the goat-skins being exported to America for that purpose. The problem of manufacturing tannin extracts from the local forests is also being considered."[1] The publication of a bulletin giving instructions as regards the correct manner in which the flaying, curing, and salting of hides should be done has been a useful measure. Direct demonstration of proper flaying and preservation of hides was also given to the chamars at certain places and in slaughter houses. The granting of sums for the undertaking of technological investigation[2] is another positive proof which indicates the changed angle of vision which the Government of Bengal maintains towards the development of the industries of Bengal. The let-alonist ideas which hitherto dominated its attitude have been forsaken. The Government is showing the right lines of advance and is thus helping the enterprising to help themselves.[3] Such a distribution of public funds for promoting the development of the leather

[1] *Vide* the address of Mr. A. T. Weston, Officiating Director of Industries, Bengal, before the Calcutta Rotary Club.

[2] For a list of researches carried out at the Calcutta Research Tannery refer to the Bulletin of Indian Industries, No. 13, page 5 and also the Bulletins issued by the Calcutta Research Tannery.

[3] The treacherous ground of pioneering has been done by the Government at the expense of the public and the people should continue the easy work and private enterprise can easily take up the manufacture of glace kid and leather manufacture to a certain extent.

industry is a proof of the fact that it should be regarded as a national industry having a brilliant future before it.

Although the Government of Bengal has done much and is capable of doing much more towards the establishment of the leather industry yet it requires the maximum effort on the part of the poeple and both the people and the Government should heartily co-operate with each other. There should be a cohesion and co-operation of all interests for the general welfare and unless it is carried to such an extent as is experienced in the case of the Japanese nation no industrial development of our country can take place.[1] The people should appreciate the proper value of industry. The Zamindars of Bengal do not at present give much attention and thought to industrial questions. Leaving aside promotion of national industries which require large resources even the development of agricultural and rural industries is not undertaken by them. It is true that their resources are immobile and locked up in intangible assets as land and real estate. But they spend much of their income for performing religious ceremonies and other social functions. The Government should help the social reformer in his attempt to educate society as regards the need for social reform, the abolition of some of the wasteful social institutions and religious customs. If by a united effort of the social reformer and the Government these wasteful social

[1] In Japan the Government is closely allied to trading interests. The introduction of new industries such as spinning, ship building, cement, glass, etc., was contrived by the setting up of government factories which were afterwards sold to private owners. A higher Council of agriculture, commerce and industry including business-men, is supported financially by the Government and the governmnnt send out many special trade investigators to foreign countries. ("*Vide* McGovern—" Modern Japan.")

ceremonies are abolished much capital can be liberated and made available for the development of industries in this country. The middle classes of Bengal are generally loath to invest their money outside the groove of hereditary trades and are still conservative enough to prefer loaning and mortgaging business and investment in landed property to any form of industrial and mercantile operations. Education is slowly widening their mental horizon and there are signs that the capitalist classes of Bengal are coming forward with their capital provided the needed technical efficiency and proper assistance are forthcoming in any particular industry.[1]

During the post-war boom days of 1919 and 1920 many joint-stock companies have arisen with a view to turn their capital and attention in the direction of industrial development of Bengal. Several of these companies have failed already due to lack of business knowledge, skilled technical experience and the trade depression.[2] This must be one of the reasons why small capitalists are now

[1] The Light railways guaranteed by the Government have attracted much Indian capital. Much capital has been sunk in oil mills in Calcutta. The Tea Industries of Darjeeling and Jalpaiguri and the Collieries of Jheria, and Raneeganj have also attracted much capital. There are signs which prove that the investing habit is not totally lacking. Instances of private enterprise developing small industrial concerns can also be cited. The development of the Bengal Pottery Works, The Bengal Galvanizing works, The Bengal Chemical and Pharmaceutical Works and the National Tannery are instances of industrial ventures pioneered by indigenous private enterprise.

[2] To quote only one instance twenty companies were started for Steam Navigation purposes and they are at present doing little or no business. Much of the capital earned during the war was thrown away in the attempt to float unsound companies during the boom period of 1919-20. Several of these companies have failed already. Much capital

afraid to take up the suggestions of the Calcutta Research tannery and work in the leather trade although the latter undertakes to afford every possible help to them.

It is absolutely necessary that the present impatience which the Indian share-holders always exhibit in the matter of dividends, should be curbed. Even the most scientifically organised and soundly started industrial concern can never hope to prosper unless it declares dividends from the first-year of its operations. It is not the shareholders' impatience alone that is to be reckoned with but people in general extend no sympathy, no consideration and no charity to an industrialist who has met with unforeseen and abnormal circumstances. People do not seriously find fault with either the merchant or the agriculturist who meets with vicissitudes or failures. There is no reason why the same spirit of toleration should not be extended to the industrialists as well. Bad rumours, dark insinuations and vicious whispers are freely indulged in and the position of the unfortunate industrialist is simply affected and his enterprise is doomed for ever. Such is the attitude of the people towards industrialism and if India is to take her rightful place in the comity of nations and if the Indian masses are to obtain a decent livelihood the only way is to develop her industries under wisely directed state help.

was shifted to England during the Exchange fluctuations of 1920. While the supply of capital is not very great the increase in the demand for capital for financing government departments for constructing public works like railways, docks, canals, and ports is very great. Supply of capital cannot keep pace with demand for several decades to come and a lowering of the rate of interest in the near future is purely an illusion. The rate of interest which Indian industrialists would have to pay would never be so low as what foreign banks would be charging their manufacturers and clients for like accommodation.

Another interesting lesson that has to be noted in the study of the export and import duties on leather is the fact that the interest of the tanners so far as they do not export their tanned hides or skins but work up their finished products themselves and those of leather manufacturers are diametrically opposed to the interests of the exporters' class. If tanned hides are being manufactured into leather articles by leather works, or if tanneries wish to absorb their own finished product in the making of leather belting, picker bands, rollers and boots and shoes exactly so much quantity available for export would be diminished. Provided there is skilled labour, sufficient experience and adequate technical knowledge on the part of the Indian tanners or leather workers they can turn out good finished leather. A part of the finished leather of the Indian Chrome tanneries is eagerly sought for in the United Kingdom. The export of black box-sides has assumed a decent proportion and more tanned hides would have been placed in the market but for the intervention of the war. If only a good improvement in the art of currying and finishing leather and in skin dressing is practised Indian made leather can stand comparison with the best products of any other country. This depends on the training which the labourers receive under expert guidance. A successful development of the leather manufactures means a curtailment of the export trade in raw hides and skins and especially the absorption of good quality raw hides in manufacturing. [1] The position of the Indian manufacturer and the tanner

[1] It is not only in this instance but in the case of other industries also the interest of the foreign trade and local protection by Indian manufacturers are never identical, in fact they are opposed to each other.

is thus vis-a-vis the raw hide exporter. In deciding between the rival claims of these the economic principle which should guide the Government should be the balance of advantage to the community as a whole. All the arguments are in favour of developing the leather industry. It is a business of military importance and not only are all the conditions favourable for its development in Bengal, specially in Calcutta itself, but the chief argument in its favour is that an enlargement of tanning and leather industry will lead to the employment of chamars and poorer Mussalmans who forsaking their avocations in their villages and losing their hereditary aptitude and skill in the leather business are drifting to the metropolis, to swell the ranks of unskilled labourers.

Such a desirable position should be striven for earnestly by all interested in the economic prosperity of Bengal.

Another lesson to be drawn from a study of the export figures is the fact that it has increased in quantity and value as well. The temporary depression of trade due to unsettled conditions in Europe [1] is accountable to the falling off of exports in raw hides and skins after the war period. The economic exhaustion of the European countries [2] and the collapse of the European exchanges are responsible for the diminution in our exports. Even the economically stronger countries such as the United States of America and the United Kingdom have reduced their demands for Indian goods, on account of the general fall in prices and correspondingly reduced purchasing power. So long as the prevailing air of uncertainty and

[1] *Vide* Mr. Stanley Baldwin's speech—Ruhr Debate in the House of Commons—August 2nd, 1923.

[2] The European countries normally absorbed 58 per cent. of our export trade—*Vide* The Review of the Trade of India, 1923 Publication.

unstable exchanges last and so long as such burning questions of International politics as the reparations and allied debts remain unsolved, no permanent recovery of our export trade is likely to happen. Unless conditions of peace and stability prevail in the continent of Europe it is futile to expect any permanent recovery or the same level of high activity in our foreign trade matters. India is to an exceptional degree dependent on her foreign trade.

During the war period there was destruction of cattle of the belligerent countries and it is hoped that the demand for Indian raw hides and skins will be on the increase and it is left to India whether to export them in the shape of raw material or of finished products. If she decides on the latter course a good deal of improvement has to be effected in the quality of the leather. Tariff regulations, Government assistance, the capture of new markets, the abundance of tanned stuffs and the training of labour will not alone secure the sale of the finished product.

The first essential is a decided improvement in the quality of the Indian leather. Even possessing the best goat skins in the world Indian tanners were unable in the past to market leather of good quality like that of America and Europe. Some opine that India "is too hot to produce first class work and remark that the high temperature of the soaks and lime-pits is a disadvantage." It must however be admitted that the tanning industry had never had the benefit of scientific experts till 1904 working in the trade. The adaptability of the scientific methods to local conditions can be brought about under highly trained experts and now that a few are experimenting in this line it can be confidently expected that better methods can be evolved so as to manufacture finished skins equal in quality to those of European and American products. The manufacture of glace kid is

possible and practicable under the existing climatic conditions. The investigation of tanning methods by scientific experts and practical tanners is going on apace. The future of the leather trade is dependent on progress in this direction.

There is no attempt to understate the importance of climatic conditions as one of the factors of suitable economic environment for the development of the leather industry. Just as in the silk industry so also in tanning sudden variations in temperature are deprecated. In case of the tanning industry the temperature should not only be constant but the mean maximum temperature should not be very high. Many processes in tanning involve chemical and bacterial actions. They will be subject to the influence of temperature. Hence there is not much wisdom in blindly imitating the methods which have been adopted in the colder countries say the United Kingdom.

In spite of these limitations well-tanned leather can be produced in India with the existing raw material available in the country provided they are treated in the right way. It has been repeated many times that India is unable to produce fine quality leather. This is only a statement of interested persons who are anxious to maintain the export trade of raw hides and skins and are evidently interested in cancelling the export duty on raw hides and skins. Good boots and shoes of civilian types are being made profitably from Indian leather with Indian labour and with modern machinery. They are in no way inferior to those at present imported from England. The best glace kid of America is manufactured from the Indian goat skins. The German tanners manufacture best box-sides out of Indian cow hides.

CHAPTER VI.

THE POSSIBILITY OF A SUCCESSFUL TANNING INDUSTRY IN CALCUTTA

"From my experience I have formed the opinion that it will be possible (in peace time and if measures are taken to discourage the export of hides as raw hides from India) to erect and start a tannery in almost any part of India, at a capital of less than 10,000 rupees to produce 10,000 pounds of leather per month, at an average profit of two annas per pound."—Mr. W. A. Fraymouth.

It is an acknowledged fact that chrome tanning factories and bark tannage factories have been started all over India after the successful experiment of Mr. (now Sir) Alfred Chatterton at Madras. His successful pioneering led to the starting of chrome tanneries in Bangalore, Calcutta, Cuttack, Berhampore, Allahabad and Rewah. Alfred Chatterton demonstrated that bark tanning [1] was a slow process and though it could be expedited to a great extent by the use of tannin [2] extracts instead of barks he noticed that the use of tannin extracts was almost unknown by that time, hence he advocated the starting of chrome tanning. He pointed out the superiority of the leather turned out by the chrome tanning processes

[1] Tanning means the treatment of hides for making leather with the infusion of vegetable tan-stuffs as well as with universal salts, oils and aldehydes.

[2] Tannin means the constituents obtained from products obtained from the vegetable kingdom. Barks and fruits contain greater tannin strength but leaves and wood prove to be the cheaper source.

as follows :—" Chrome leather has special and peculiar qualities which distinguish it from all kinds of leather and these special features cause it to be a superior fabric for all purposes for which leather is used. It has often been stated that chrome leather is water proof but this is not a proper term in connection with it; it should more probably be called non-absorbant. All kinds of leather produced with tannin absorb water readily like a sponge, while chrome leather produced does not absorb water but resists it or sheds it like the feathers of a duck.

In fact it is a difficult matter to thoroughly wet chrome leather when it is once dry. Again water and air are the agencies in nature which promote decomposition and decay and as tannin and hide substance are both organic materials and when combined as is the case in bark tanned leather and subjected to the same process of wetting and drying shows no effect whatever. In fact, the oftener chrome leather is wet and dry, the softer and more flexible it becomes. Even subjecting it to boiling water has apparently no effect upon it while any sort of leather produced with tanning and placed in boiling water is utterly destroyed. Moreover chrome leather is of much lighter weight than bark leather and this is the decided advantage for almost all purposes for which leather is used." [1]

Mr. Talhati, A Parsi gentleman, learnt the chrome process in America and started a successful factory in Bombay called the "Minocher Leather Works" and proved that chrome tanning is suitable to this country and that cow hides, calf-skins, and sheep skins can all be chromed like goat skins. Chrome tanning not only

[1] Mr. A. Chatterton quotes this para from the Manufacture of Leather by Mr. C. T. Davis—Monograph on Leather, Madras, p. 47.

yields lasting leather suitable for water-buckets and other articles but it could be finished in a day while bark tanning was essentially a long process requiring nearly a month to complete the process.

Mr. Chambers also took up successfully chrome tanning at Pallavaram [1] (Madras) and these three can be said to be the pioneers of chrome tanning in India.

Chrome tanning is essentially a chemical process involving the use of chrome salts (bi-chromate of potash or soda, chrome-alum) lactic acid and boric acid. A successful chrome tannery if established on a large scale requires a large capital, considerable amount of machinery and trained labour and expert technical knowledge and the larger the scale on which it is worked the better are the prospects of financial success.

Again hides and skins of good quality are required for chrome tanning process. A large quantity of Indian raw hides are not suitable enough to receive with advantage the chrome tanning processes and produce finished leather. Where slaughtered hides are available as in Calcutta it is possible to have the requisite raw material in large quantities. But for the dead hides which form the major portion of the Indian raw hides the bark tanning process is more suitable but improvements should be effected by the use of better methods and manipulation. There is a good deal of waste in labour and in the use of curing and tanning materials, such as salt, myrabolams, tanning barks, and tallow used in the indigenous tanneries employing bark tanning. The introduction of tanning

[1] For a detailed history of the Chrome Leather Company, Pallavaram, Mr. Couchman's hand-book of Commercial Information, Madras, will be valuable. Also refer to Mr. G. A. Chamber's evidence before the I. I. Commission.

drums, paddle wheels, improved tools and appliances and small changes in the construction and position of the tannery pits and vats will be of much use, save much labour and bring about a considerable saving in the cost of manufacturing as well. Hence factories employing both chrome as well as bark tannage have a brilliant future than chrome tanning factories alone.

Almost all the essentials for a successful tanning industry exist in Calcutta. It has been shown that Calcutta exports the largest quantity of raw hides than any other individual port in India. All sorts of hides are to he had in plenty and it is not impossible or difficult to secure a large quantity of good quality hides. The Dacca kips are well known for their good quality and they are fairly well-grown but flaying and indifferent curing lowers the economic value of the hides. In order to realise the full value of the hides methods of better flaying and good curing should be taught to those engaged in this process.

A society for the improvement of the hides and leather should be formed on the model of the Hide and Leather Allied Trades Improvement Society in the United Kingdom. It should take up the following duties :—(1) bringing about improvements in flaying and curing processes by holding hide flaying competition and the granting of bonuses for well prepared hides, (2) teaching to the farmers the necessity of taking more care of the beasts and attempts to eradicate the evil of branding should be made. The snipping of the ears instead of butt branding should be advocated, (3) the insisting on the arathdars to keep the hides in a clean and dry place; the good ones should as far as possible be kept separately and adulteration checked to a great extent, (4) appointing travelling inspectors to tour round the districts and improve

the collection of hides. The Muhammadan sorters who are employed by the exporting houses check the selection of hides originally done by the arathdars, can with advantage be utilised for this purpose. They should be previously taught the best methods of taking off the hides. Either these or the beparis who are employed by the arathdars could be selected for this purpose.

A hearty co-operation between the Calcutta Hides and Skins Shippers' Association and the existing tanneries now employed in this business, should exist and it would be advantageous for both parties to combine for this purpose. A careful working out of the above programme will not only improve the quality of the hides but good quality hides can be increased to a great extent.

It is not only a plethora of raw hides sufficient for full working of numerous tanneries that can be had, but almost all other factors indispensable for the tanning industry, are to be had in Calcutta. Coming to the question of labour, it has already been pointed out that the chamars and the mochis are the indigenous leather workers. In the city of Calcutta itself, there are 33,808 chamars and 12,703 mochis, of these 12,703 are male chamars and 9343 male mochis.[1] These chamars though proficient only in the methods of bark-tanning yet with some little training in the processes of machinery can be turned into skilled labourers for the

[1] *Vide* Mr. B. M. Das, Evidence before the I. I. Commission.—"There is absolutely no dearth of labour in Calcutta. According to 1921 Census in Bengal there are 136,563 chamars (86,504) males and 455,488 mochis (244,012) males. Besides this several come from Behar and Orissa, North-Western Provinces and the Punjab."

The 1921 Census estimates the number of tanners, curriers, leather dressers at 1,2917 male and 311 female workers with 19,619 dependents making 32847 in all supported by the hide-industry against 38,203 in 1911 and 29,628 in 1901—Page 4050, Vol. V. Part I, Census Report.

tanning factories. Specially the literate chamars and the mochis are fit to understand new processes and adapt themselves to changing requirements and provided expert knowledge supervises them, they can be turned into the very skilled labourers that are necessary to look after the machines installed in a model tanning factory. The presence of hereditary skill in the chamars and the mochis would make them efficient labourers. The problem of factory hands so far as the leather industry is concerned is always a simple one.[1] The establishment of the Imperial Tanning Institute which the Indian Government contemplates, would solve the problem satisfactorily.

The training of young Indian tanners, the sons of those already working in the leather industry can easily be undertaken. At the age of 16, these lads should be taken up and taught how to unhair and flesh a hide, to learn the classification of hides and tanning processes. This period of training should last two years when he will be able to acquire the "tanner's sense" and then he should be made to learn how to handle finishing machines, fancy dyeing or finishing experiments. These trained labourers can be employed as workmen in small tanneries or taken as factory hands in the bigger tanneries or boot factories and leather works.

Raw hides and skins and requisite labour are to be had. But the leather trade is not like carpentry, black-smithery and other trades where people can successfully work on the raw material provided by nature. It is essentially a chemical industry depending on the climate, the water,

[1] *Vide* Appendix V which contains a table showing the distribution of chamars in the different districts of Bengal so that reliance need not be placed on the chamars and mochis of the city of Calcutta alone.

and the bark that is available for tanning. The climate of Calcutta is suitable for the tanning industry and "potable water" free from iron and other chemical impediments can be had in plenty. Plentiful supply of good water is essential for the successful working of a tannery. Bad water makes the leather flat, precipitates chalk in the fibres of the skin making it impossible to be removed by any subsequent process. It tends to weaken the tanning solution, to discolour skins, to waste fat liquors and to make dyeing patchy and uneven. Many of the difficulties which tanneries experience arise solely out of the water employed and it is unwise to expect first class finished goods if the water employed is selected carelessly. The water should be free from iron or sewage or other organic impurities or harmful bacteria.[1] The water should not only be free from these impurities but it should not be hard water whose permanent hardness cannot be removed even by boiling. Speaking of these factors Mr. Swan, the Director of Industries in Bengal, says that "both the climate and water of Calcutta are suitable for the tanning industry."[2] He also speaks of the advantages of Calcutta as a sea-port town and the existing principal centre of raw hide trade.

As a matter of fact several tanneries [3] doing business in Calcutta are thriving and their continued existence for several years is a convincing proof of the suitability

[1] *Vide* 'Dr. H. R. Proctor, Leather Industries Laboratory Book, pp. 31-52.

[2] *Vide* Report of Mr. Swan on the Industries of Bengal, 1915.

[3] Mr. R. L. Chandra mentions that 17 tanneries were doing business in Calcutta. *Vide* Appendix I—His Monograph on Leather, Bengal. Several of them are still existing though they turn out only small output of tanned hides. During the War time new and large chrome tanneries have arisen in Calcutta under the management of Calcutta firms. *Vide* I. M. Board Bulletin, p. 31.

of the climatic conditions of Calcutta for the leather industry.

There is no dearth of tanning materials required for bark tanning of the indigenous tanners. Indian forests contain numerous trees and plants which furnish in their bark, leaves, roots and fruits and vegetable ingredients for tanning at a small cost only. All these are not known to the people but only a few of them are being used for tanning purposes, *e.g.*, myrabolams, babul, amlaki, Asan, goran bark and dhawa leaves. There has been no systematic exploitation of the Indian forests to discover what other available tanning material could be obtained from the forests. Again there was no systematic and methodical collection of the tanning materials. The bark of the trees was not systematically and carefully stripped from the full grown trees at the time when the sap was in the trees. There was no conservation of these saplings and very little attempts were made to acclimatise foreign trees which contain tanning ingredients in our forests.[1]

During the War time, the supplies of babul bark failed and a tanning research institute under the care of Mr. W. A. Fraymouth was established at Maihar in the Central Provinces. A tanning expert, Mr. J. W. Pilgrim, was employed to organise systematic research in the conditions of tan stuffs and the following quotation from his written evidence that there are a large number of potential

[1] Myrabolams, Cutch, and divi-divi were introduced in this country within the last hundred years and they are growing satisfactorily in our climate. Similar attempts should be made to plant Algrobilla pods from South Amrica (these contain 50 per cent. tannin); the Sumach leaves from South Europe (10 to 25 per cent. tannin); and the persellig bark from Chille (24 per cent. of tannin; *Vide* R. L. Chandra's monograph, page 9. Also Dr. Sir N. R. Sircar's written evidence before the I. I. Commission.

tan stuffs in India.[1] A systematic exploitation of these on a commercial scale will not only provide the needed tan stuffs for the Indian tanneries but a successful export trade of the tan stuffs to Europe can be started. "There are already available in India a large number of tan stuffs of which, though much is known much more is certainly being learnt, further there are a number of at least potential tan stuffs, which it is the duty of the tannin research institutes such as the one at Maihar, to investigate on the practical side for the benefit of the tanner. The amount of the work to be done is so large that it will necessitate the institution of several local tannin research institutes one in Burma, one in a hill station to study the tannins of the Himalayan forests, one in Bengal, one in Bombay one in North West Provinces and the leather school in Madras has already taken up research under the direction of Captain Guthie. By a united effort on the part of the research institutes, a small compendium of the suitable tan stuffs will be available."

In Bengal there is no dearth of the tan stuffs but there is no regular classification of the different tan stuffs. The price is not fixed according to their tannin content. This should be done by the Calcutta Research Tannery as early as possible. The Himalayan forests of the Darjeeling district produce a kind of hill-oak whose bark contains ten per cent. tannin in it, also hill-chestnuts capable of yielding tannin. The Sunderbans contain large areas of mangroves and these yield 27 per cent. of tannin according to the researches of Mr. Pilgrim. Calcutta practically exports

[1] Also refer to the third part of the Report of Trade in Indian hides published by the Indian Munitions Board. It consists of an account of the results of recent researches in Indian Tanning materials by Mr W. A. Fraymouth and Mr. J. A. Pilgrim. It also contains a note on the extraction of tannin extracts out of the Indian tan stuffs.

large quantities of myrabolams extract to Germany.[1] This extract contains 50 to 60 per cent. tannin and is shipped in solid blocks encased in bags, weighing I cwt each from the port of Calcutta. It is not only that a plentiful supply exists as regards the tanning material used for bark tanning but the situation as regards chrome tanning also, is favourable in the case of Calcutta.[2]

[1] The following table gives the quantity and value of myrabolams exported during the years 1914 to 1920. Cotton's Handbook, p. 255.

Year.	Quantity.	Value.
	cwts.	£
1913-14	61,000	379,626
1914-15	58,000	550,450
1915-16	69,000	470,157
1916-17	54,900	418,895
1917-18	40,778	315,300
1918-19	41,195	328,936

They are exported to Germany, the United kingdom, Belgium France and Austria Hungary and the United States of America. There is scarcely a tannery in any part of the world that does not use this tanstuff. Chrome tanneries naturally excepted. Report of the Indian Munitions Board on Indian Hides and Skins and Leather.

Crushed myrabolams began to be exported during the war time. There is a factory for the manufacture of myrabalams extract and in 1919-20 one thousand nine hundred tons of extract valued at £.38000 were exported from India.

[2] The following tables speak of the importation and exportation of the tanning barks *into* and *out* of the Bengal Province.

Tanning barks.

Year.	Imports *into* Bengal *from* other Provinces of India.	Exports *from* Bengal *into* other Provinces of India.
	Cwts.	Cwts.
1916–17	4429	2660
1917–18	3627	3541
1918–19	2563	25607
1919–20	5405	13064
1920–21	3403	31651

Myrabolams

Year.	Imports	Exports
	Cwts.	Cwts.
1916-15	72,997	12,296
1917-18	84i629	15,079
1918-19	50,899	25,772
1919-20	104,468	55,745
1920-21	109,802	21,005

Vide p. 15 "Internal Trade of India."

Chrome tanning requires chrome salts (bicromate of potash of soda, chrome-alum) lactic acid, boric acid and the aniline dyes used for colouring the leather.[1] The chrome ore exists in large quantities[2] and chemicals can be manufactured easily out of this and Messrs. Waldie & Co., have already undertaken the manufacture of chrome alum.[3] During peace times the supply of chemicals from America and the United Kingdom can be relied upon. Thus there is an abundance of tanning materials both vegetable and mineral ready at hand for the biggest tannery that can be started in Calcutta.

Mr. B. M. Das cites all the above advantages but adds one more reason why tanning should be taken up in Calcutta. "Tropical heat injures raw hides and skins if they are not properly cured after flaying Indian hides and skins are preserved for exports by dry salting and

[1] There are various kinds of vegetable dyes red, yellow, and brown in India and these can be utilised for dying leather "Briggs says" coloured leather are made from goat and sheep skins by special processes". To produce red leather lac is put into the gruel bath Blue leather is obtained by the use of copper filings sal-amoniac and lime juice and black leather by the use of copper as instead of copper filings. The manufacture of shagreen is in the hands of Muhammadans. The preparation of the skins of various species of deer is as above except that of sal bark is used in the tanning process. Sal gives a rich brown colour, dhadra a light yellow and babul a buff. Combinations of these materials produce shades of colour. *Vide* Briggs, p. 259.

[2] Chrome is obtained from Quetta, Central Provinces, and in Singhbhum. There are large deposits of chrome ore in Mysore. If chrome tanning materials can be successfully manufactured there will be a demand for export also and dependence on America for supplies would be removed to a great extent. Dr. R. L. Dutta in his written evidence before the I. F. Commission points out the fact that chemical industries can flourish in this country and pleads for 33⅓ per cent. protective duties to be levied against imported chemicals.

[3] *Vide* Mr. Swan's Report on Industries in Bengal.

drying." This would not yield good leather. According to him leather of good quality can be obtained from wet-salted hides and it should be better to convert the wet-salted raw hides into good quality leather here in Calcutta itself.

One more advantage which Calcutta possesses in the matter of the leather industry is the fact that electricity can be applied with success and this form of motive power can be generated easily and cheaply. Electric tannage seems to possess a brilliant future before it and will revolutionise the industry to the immense benefit of the public and the nation. Dr. Groth's system of electric tannage can best be described in his own terms.[1] "Hides are suspended in the tanning liquor and kept there in horizontal motion, the tanning liquor being likewise kept in motion but in a reverse condition to that of the hides, whilst an electric current is forced through the liquids and the hides." The great merit of this system is that "a pure and strong tannage of heavy hides is produced with the great advantage of reducing the time of tannage to six weeks, the working capital by 75 per cent. and the cost of production by 50 per cent. whilst the quality of the leather produced is unsurpassed by reason of its uniform tannage." It is moreover applicable to all kinds of leather from hides or skins to vegetable or mineral tannages or to a combination of both with any blend or mixture of tanning materials.

To sum up the correlation of forests, river, manufacturing site, rail, electric power, port and a market is one of the most desirable things that Calcutta possesses and it can unhesitatingly be said that Calcutta may become one day the "Leeds" or the "Bermondsey" of the East if

[1] *Vide* Dr. L. A. Groth, Modern Tanning; p. 15.

only proper advantage is taken of the economies of her industrial situation.

There are at present about 15 tanneries in the whole of Bengal according to the Government Blue Book "Large Industrial Establishments in India," 1922[1]; six of which use mechanical power and the remaining nine are not worked by mechanical power.[2] Including leather factories the number has been calculated at 18 and these give employment to about 1,089 persons. The provinces of Madras, United Provinces and Bombay are much better off in this respect. Madras possesses 55 factories employing 5,579 persons; the United Provinces has 10 factories employing 5,823 persons; Bombay has 15 factories employing 1,128 persons.

From an economic and industrial point of view the leather industry did not prosper till the advent of the late

[1] *Vide* p. 7 (Introductory note).

[2] *Vide* p. 36 (Large Industrial Establishments in India).

Tanneries in Bengal and 24-Parganas.

(*a*) Worked by mechanical power.		(*b*) Not worked by mechanical power.
(*i*) National Tannery, Pataldanga	134 persons	There are 9 factories; 6 of which employ 30 persons each and the rest 25 persons each.
	persons	
(*ii*) Bengal Tanneries, Kidderpore.	220	
(*iii*) India Tanneries, Kidderpore.	111	
(*iv*) Dr. Sassoons' Tapsia Leather Factory, Road.	113	
(*v*) Berhampore Leather Manufacturing Co.	99	
(*vi*) Beldanga Tannery ...	60	

Thus all these tanneries aresmal enterprises.

war. All the tanneries[1] in Bengal were in a precarious condition before the war and thanks to the war some of them are paying their way but the enterprises being small the aggregate result is not large. Some have failed and their experience might be valuable to the survivors so far as technical information is concerned but they have never been worked on a Commercial scale. The present chapter has been written with this point in view, *i.e.*, the establishment of the tanning industry on a commercial scale means the exporting of tanned hides in place of raw hides that are being exported in such large quantities.

[1] The Industrial Census of 1921 shows 25 tanneries mainly in the eastern suburbs of Calcutta against only 10 in 1911 but they have not been successful and they employ very few persons than the 10 in existence in 1911.

CHAPTER VII.

Some Obstacles in the Way of the Tanning Industry and how to Overcome Them.

"It is becoming more and more apparent that the realisation of our political ideals is to a great extent, if not wholly dependent on our progress as a nation in the path of useful knowledge, industry and commerce and upon the forms of co-operation, combination and organisation." *Hon'ble Mr. B. N. Basu.*

Theoretical economists and arm-chair politicians often err in thinking that an industry can be successfully established if only there is plenty of raw materials required in that industry; adequate skilled labour to work up the natural resources and a sufficiency of capital under able hands endowed with the requisite organising capacity.

It is true that "capital without enterprise or enterprise without capital is like a dissevered pair of scissors" and although they can be effectively united by the most inventive and enterprising mind of an industrialist many more conditions are absolutely necessary for industrial success. The four above conditions are *prima-facie* the most essential for the starting of an industry. But its continued existence and prosperity depends on several other factors the most important of which are the following:—Elastic banking to aid and supplement the monetary resources of the industrialist so that he may not be impeded in his operations by lack of capital; highly technical and skilled experts to guide and superintend the ordinary labourers and foremen of the factory, commercial

and business knowledge enabling the industrialists to obtain the raw materials cheaply and dispose of the finished products in the best markets so as to fetch maximum prices, cheap transport facilities either by rail or water to gather the raw material at the smallest possible expense and to market his products cheaply, a steady and safe market where competition from foreign or national producers is not so keen, sufficient staying capacity to resist the external competition if any Government assistance in this direction by protective duties, export bounties or other facilities, the existence of a subsidiary industry on which the industrial labourers may fall back upon during times of depression or to augment their slender earnings during ordinary times when the industry is in full swing, adequate supply of machine or other mechanical appliances that are used in the particular industry, at a cheap rate and lastly the feeling of group consciousness and the realisation of the necessity of collective action specially on the part of labourers and capitalist—all these are necessary for the establishment of an industry in any country on a firm and stable basis.

It has already been shown in the last chapter that Calcutta affords a suitable site for the establishment of a large tanning factory which may take up chrome tanning of good quality hides and bark tanning of the inferior quality hides. If chrome tanning or bark tannage factories can be easily started are the other conditions favourable to give them a long lease of life and times of prosperity to this industry; in short, is there a harmonious combination of all conditions that are necessary for the firm and successful establishment of the tanning industry in Calcutta?

As it has been pointed out already small scale tanneries have been doing business but their existence and prosperity have all been due to war conditions. Some

of them have been producing good quality leather and turning out their finished leather into boots and leather articles required for the mills and are gradually establishing their names in the market but the future is not so bright for them. They will feel the brunt of competition and with the restoration of peaceful industrial conditions in Central Europe, cut throat competition will once more prevail.[1] Their success during war time has however shown the possibility of starting an important and a large tanning industry. This can only be done by a combination of the existing factors working in the leather trade. A new concern or the Government starting a big tannery or leather factories would tend to stifle private enterprise but in the scheme outlined all the existing tanneries should be absorbed in the hands of a single trust. If the leather industry is at all to be developed by private enterprise of the present type it may take nearly 50 years. But with Government help the trust may accomplish it within 20 years. The advantages of such a syndicating organisation would be very many. There would be a steady rate of production, better and lower prices, and steadier profits leading to the advantage of the wage earners. This large concern can look to the health and comforts of the labourers, perhaps erect model dwellings and look towards the social and moral welfare of the wage[2] earners. As the authors of the Elements of Reconstruction observe "big business, progressive methods and scientific research come together.

[1] "The Germans in order to kill the Indian tanneries always offered higher prices for the raw hides than the tanners could get for their finished articles." *Vide* Mr. J. C. K. Peterson's evidence before the I. I. Commission.

[2] "Elements of Reconstruction" with an introduction by Lord Milner—*The London Times*.

Syndicating businesses and organising scientific education and research are two aspects of the same job." The existing small employers are not in a position to devote their attention toward scientific research or improve the labourers' lives. Just as in world politics the days of the small isolated sovereign states are gone so also big enterprises are necessary to withstand world competition.

Many difficulties have to be encountered while forming this syndicate. Stock watering and speculation which are the acknowledged defects of the American trusts should be avoided. Before thinking of its export interests, this syndicate or trust should aim at greater steadiness in the domestic industrial conditions and improvements in the quality of the product produced.

Banking facilities are absolutely essential for the tanning industry conducted on a large scale. A large amount of capital gets locked up for at least five months when hides are lying in the vats and banking facilities are necessary in order to enable the purchase of raw materials or chemicals or tanning materials or to make new extensions. It need not be said that Calcutta by virtue of the presence of a large number of banks stands in a position of advantage and the financing of the leather industry is no new thing for them.[1] If a big tannery were to be started by the joint co-operation of the existing factors working in the leather trade, say the shippers, the tanners, the arathdars and other firms doing business in

[1] "The German firms always depended on the banks to advance money against hides brought into their godowns. The Chartered Bank specially indulged in this business. The shippers of hides generally do not possess much capital. They work on a system of advances and purchase hides and the Exchange Banks generally advance against them." *Vide* evidence of Mr. J. C. K. Peterson before the I. I. Commission.

leather, such a tannery would not only not suffer at any time for want of banking facilities but will not suffer from want of initial capital.[1] The Government might assist in subscribing a part of the capital in the said company, and as this is not feasible on account of the financial condition of the Government it can lend its assistance in other directions.

As regards expert knowledge, it is not so hopeless as was the case before the war. There were not only factory hands trained at the Allahabad and Maihar factories but several were also taken up at the Calcutta Research Tanning Factory[2] which is under the able guidance of Mr. B. M. Das who possesses a theoretical knowledge of the tanning industry and is also a practical tanner. Provided decent salaries are offered it would not be difficult to procure the needed tanners and expert chemists to guide the chemical processes of chrome tanning.

More attention should be paid towards the industrial training of the general labourers[3] and this cannot be solved till the Imperial Tanning Institute and technical schools and colleges are started in this country. The duty

[1] A purely private Indian enterprise will meet with difficulties in raising advances from the banks. Mr. K. Chouderi gives an instance of a Calcutta tannery being refused an advance of 10,000 rupees by an Exchange Bank of Calcutta although the assets of the tannery were worth one lakh of rupees. But if a combine of the existing factories in the leather trade were to be formed it would solve easily the problem of sufficiency of capital. Shippers may either elect to send the hides to foreign countries or send them for tanning to the combine.

[2] The C. R. Tannery can train 20 apprentices at a time. The Exhibition Guide Book informs us that 6 out of 8 trained apprentices were provided with suitable jobs in the trades.

[3] As John Perrin says "a manufacturing country that depends upon a few good managers and an army of unintelligent slaves will fall as the Roman Empire fell."

of the technological institute is to carry forward the application of scientific knowledge, carry on research and train pioneers of industry. The technical schools and colleges should teach the craft of tanning and the making of boots and shoes[1] as practised by the progressive firms employed in the leather industry. Both the Institute and the colleges should work in close harmony with the existing universities to solve all problems brought to the notice of the Industries Department.

It would be doing injustice to the Bengal Government if due recognition is not given to the work it has been able to accomplish in this line. There are at present thirteen technical schools and forty-six industrial schools[2] and thirty-five weaving schools under the direct supervision of the Director of Industries, Bengal. Some of the schools not only engage themselves in the business of actual teaching and imparting of instructions but they produce fairly large quantities and execute large orders for finished products. Technical and industrial education should be extended on

[1] This leather school should teach the theory of boot and shoe making and have practical course in blocking, feathering and holing in soles, lasting, welt-sowing, welt-pairing, and bottom filling. Sole fitting, stiching, heel building, pairing and finishing and the making of rivetted boots and shoes should be included in the curriculum. The theory of boot making as explained by Mr. William Greenfield in his Boot-making and Mending in the series of "Work" handbooks should be explained to the students in the school. It might be here pointed out that the Madras Leathor Trades School has proved quite a success. The organisation of practical teaching classes in the processes of tanning at the Dacca and Viswa-Bharati Universities is indeed commendable.

[2] The term "industrial school" means a place where a particular industry is taught for instance a weaving school. A carpentry school is a technical school because the classes have to learn mathematics, drawing and other subjects connected with ordinary education. There is not much clear distinction between the two.

a more liberal scale and a combination of general with technical education seems to be necessary at the present state.

Elementary education has not been made compulsory as in the case of Japan and other progressive countries of the west. Till then the general intelligence of the people would not be improved sufficiently to cope with their position in the modern industrial conditions and life. As the late Mr. Gokhale said "No real economic and social development of a people is possible without the education of the masses. Such education is the foundation and necessary antecedent of increased economic activity in all branches of national production in agriculture, small industries, manufactures and commerce." It leads to a more equal distribution of the proceeds of labour and it ensures a high level of intelligence and an increased capacity for achieving social advance among the people. It is impossible to overestimate the importance of this question in the present state of India.

Commercial and business knowledge can be acquired by experience and in case a combine of the existing agencies is formed it can safely be asserted that there will be no lack of capacity for business organisation. A taste for commerce and industry is[1] being slowly created by the

[1] The deficiencies in the present available educational system are being gradually rectified and the Bhadralog class (middle class of Bengal) is taking up industrial work such as that of fitters and mechanics in the factories and engineering workshops. These would prove efficient and skilled labourers as they possess intelligence, industry and temperate habits. They have to overcome the alluring temptation to take up law, government service and education where the possibilities of success are many. Industrial remuneration is very small and the work required in industry is so very exacting that several of the intelligent and middle-class Indian people prefer to follow the occupation of law, education and government service.

healthy diversion in the course of University Education brought about by the institution of degrees in Commerce and this change will benefit all industries in general.

As regards cheap transport facilities Calcutta has the advantage of land as well as water transport but much has to be done in the case of railway freights. Low freights are needed to carry the tan stuffs to Calcutta and it should in no wise be thought that the railways would stand to lose by such reduction.[1] This will lead to the collection of the jungle products and their transport to the tanneries. The people will be much better off and other commodities may be bought by them with the newly obtained money and the railways may gain by carrying these commodities. The East India Railway Co., always lowered the rate for raw hides at the instance of the German shippers and the Indian Munitions Board tried to arrange for lower rates with the railways but no action has been taken by the latter.

So far as the market is concerned it must decidedly be admitted that there is not much demand for finished leather at present in India but there is the world market before it. Great Britain before the war preferred to take the German tanned hides rather than Indian raw hides. India stands in a strong position by virtue of the fact that it commands a large portion of the world's supply of raw hides. So far as raw skins are considered it is admitted that she has a monopoly of the goat skins. In the case of hides about 11,64,000 mds. of raw

[1] The proposed combine should adopt the principles of the Esociet factory in the conveyance of the bark and tanning materials required for their bark tanning. The packing of the materials into small compass as small gunny bags will enable the company to get the maximum value out of each railway wagon-load.

hides are exported annually from Calcutta to be tanned elsewhere. There is no reason why they should not be tanned in India and exported in the shape of good quality finished leather. The world must have leather in some shape or other. The domestic market itself can be developed to a great extent. Improved methods of tanning and technical progress in manufacturing would cheapen the product. The cheaper price would stimulate demand. An increased demand would in its turn lead to large scale production and the realisation of economies, would lead to a lower cost of production and eventually lower prices would be the result. Improved methods and technical progress are the primary causes of this series of causes and effects and these can be borrowed from the progressive manufacturing firms of the west. Cheapness and quality are essential to capture the home market. The Indians are a poorer people and much more economical buyers than the other nations. Only an effective cheapening of price can force them to consume the factory-made goods and the development of the home market would be a slow process extending over considerably long periods. Instead of the negative way of helping the leather industry by levying protective duties some positive assistance should be afforded by the Government and the tanning combine would be able to establish the industry on a satisfactory basis.

Some of the experts have proposed that India should undertake half-tanning only. [1] There is no reason why

[1] Mr. Fraymouth is of this opinion. He says "I have the greatest belief in the future of finishing and currying leathers in India for export but I feel sure that if we can firstly succeed in half-tanning our hides to produce sound crust leather and persuade tanners in Great Britain and elsewhere to leave us our first profits, while we

the currying and finishing of leather should not be done in India. Indian tanneries were producing good black and brown box-sides so as to meet the requirements of the English firms. With proper guidance under expert supervision the Indian tanners will be able to learn improved currying and finishing methods.

If the market in the United Kingdom is not adequate enough to absorb the finished products new markets might be tapped in other countries. Sample consignments despatched to South Africa, Canada and Australia have already attracted notice. Mesopotamia and Straits Settlements afford valuable markets for the manufactured goods. A part of the finished leather can be used for manufacturing purposes by the tanning combine itself. In its manufacturing department, it should attempt to manufacture the leather articles required by the mills such as belting, picker bands, roller skins and other articles. These can be manufactured at a cheap price than the foreign articles and provided they attain the same standard of finish, durability and quality the Indian mills would be too eager to buy them. In order to accomplish these results the proposed tannery should devote some of its energy to the manufacturing side of the problem also. It should be in a position to convert its finished leather into manufactured boots and shoes and the above mentioned articles for which there exists a pretty large demand already. As for the possibility of making picker bands it only remains to quote the experiment carried on by Mr. B. M. Das in this direction while working

leave the finishing profits to tanners overseas for the present, we will be likely to succeed because we will not be attempting too much and because India is not likely to receive many favours unless she offers inducements to gain friends abroad."

at the National Tannery.[1] These yielded satisfactory results.

It might be remarked that this combine would naturally kill itself by such undertaking of a multiplicity of operations.[2] Unless leather goods factories arise for the turning out of fancy leather articles as those turned out in West-End in London, it is not advisable to turn out finished leather of all kinds suitable for all articles say men's and ladies' boots, mill leathers and saddlery and harness or transport gear. This tanning combine should necessarily confine itself to the production of those leathers which are suitable for leather belting and other mill requirements for which there is a large home demand and which can be easily manufactured. Box-sides and glace kids should be produced in large quantity and those that cannot be absorbed by the Indian leather manufacturers or its own manufacturing department should be exported as surplus.[3]

Sufficient staying power to resist foreign competition is necessary and the Government of India with a view

[1] *Vide* the oral evidence of Mr. B. M. Das before the I. I. Commission. Replying to Mr. A. Chatterton he said that " chrome buff leather was being untilised for the purpose of making a picker bands." At present the National Tannery and the Berhampore Tannery are producing good quality picker bands for the use of the Indian mills.

[2] Mr. N. T. Chary of the Mysore Tannery attempted to produce all kinds of leather and progress was slow. " I started doing all sorts of leather which would compare very favourably with the imported articles but I could not manage this business."

[3] Adam Smith says "when the produce of any particular branch of industry exceeds what the demand of the country requires, the surplus must be sent abroad and exchanged for something for which there is a demand at home. Without such exportation a part of the productive labour of the country must cease and the value of its annual produce diminish."—*Wealth of Nations*.

to encourage the tanning industry levied an export duty of 15 per cent. on raw hides with a preferential clause aiming at the development of the British Empire tanning industry. But unfortunately the expected results have not been reaped. The export firms have been agitating against this duty and the preferential clause as well. The Indian Fiscal Commission has pointed out the injustice of the preferential element and a failure of the protective duties to place the industry on sound and stable lines of progress. With the levying of protective duties alone the Government should not incline to the view that it has done everything necessary. Much more help is required; the leather industry is of great military importance and as the scope for its successful establishment is so great the Government should extend its assistance in the following directions: Protection should be granted by the retention of the existing import duties rather than by retaining the export duty. The Indian Legislative Assembly did the right thing in lowering the export duty on raw hides and skins to 5 per cent. instead of the 15 per cent. rate. An export duty on the raw material hinders the producers and is apt to create an ill-feeling in those countries which use the raw material for their industries and they may likely retaliate. An export duty is justifiable only on revenue grounds and it should be levied only on monopoly articles. The retention of the export duty on skins and superior class of hides is perhaps justifiable but the export duty on the low class raw hides should be removed as early as possible. It is seriously injuring one aspect of the leather trade, *viz.*, the exportation of raw hides. It is true that the export duty has been levied at times of trade depression and perhaps the trade depression is chiefly responsible for the falling off of export of raw

hides.[1] Whatever might be the reason for the slackness of the export trade the retention of it on the plea that it will protect the tanning industry is highly impolitic and as soon as the pressing necessity for revenue is over the whole of the export duty should be removed.

Coming to the example of foreign countries one finds that Germany and France have either entirely prohibited the export of calf skins or placed an export duty on export of skins. It may seem inconsistent to recommend the entire removal of the export duty on raw hides and skins while advocating protection to the leather manufacture, and the tanning industry. There is no reason why it should not be extended by the levying of both an export duty and an import duty. The chief reason why the export duty on raw hides and skins should be abolished has been already mentioned. The retention of export duty on raw hides with the intention of retaining them for the Indian tanning industry is unwise as it punishes the exporters and lowers their income. It is just like punishing one's own children just to spite one's neighbour. The preferential export duty can hardly be justified. It has deprived India of the opportunity to sell her goods to the highest bidder. Imperial Preference only forces the Indian producers to sell their produce at a very low rate to the United Kingdom. The principle of showing preference to the Empire countries *by means of* the export duty is not desirable as it may deal a severe financial blow to the Indian producer and cause serious economic loss to India.

[1] One reason for the dwindling down of the exports is the growth of the leather manufactures in this country. It is this growth of the leather manufactures again that is affording scope for the improvement of the tanning industry by itself

CHAPTER VIII

THE STATE AND THE LEATHER INDUSTRY

"English theories as to the appropriate limits of the state's activity are inapplicable to India. We are agreed therefore that there must be a definite change of view and that the Government must admit and shoulder its responsibility for furthering the industrial development of the country. Though there are severe obstacles they are not insuperable but they will be overcome only if the state comes forward boldly as guide and helper."

Montford Report.

Thanks to the Indian Industrial Commission the Indian Government has at last realised the necessity of adopting a policy of active encouragement of industries. Serious efforts are being made to wipe off the bad name it has earned in the past by failing to foster new industries and helping the struggling industries.[1] Still the people believe that the forces of the State are against them and a feeling of helplessness has been generated. India is an old country and for several centuries her people have been poor. The fertility of her soil is far below that of the advanced countries. Her population is still predominantly agricultural and they have been noted for their conservatism, lack of enterprise and unprogressive character of their

[1] The maintenance of free trade pre-war tariff since 1892 to enable England to find an extensive market for its goods in the Indian market even to the detriment of Indian industries, the levying of the cotton excise duty, the protest of Lancashire against the raising of the tariff from $3\frac{1}{2}$ to $7\frac{1}{2}\%$ on cotton goods in the year 1917 and the exclusion of fiscal policy in the terms of reference, to the Indian Industrial Commission unfortunately lead one to the conclusion that India's fiscal policy was framed more in the interests of Britain than that of India.

industrial development. Centuries of isolated and self-sufficient life have taken away the impetus to work and earn more. The character of the Government itself and the nature of the social institutions have placed so many impediments in the cause of progress that India can well nigh be considered as the "land of impossible limitations." Unless active assistance is liberally offered to various industries it is not likely that private enterprisers will come forward with confidence to develop industries. There is at present no sense of security prevailing in the minds of the industrialists and it can only be created by the State coming forward to stabilise the industries and enabling the industrialists to overcome the handicaps.

The Government should follow an active and more radical policy of direct and open participation in the material exploitation of the resources of this country. The principle of advancing funds for the promotion of industries has been accepted by the Government and the Madras provincial legislature has gone ahead and passed the State aid to Industries Act. Section 6 of this Act says that the Government can assist industrial enterprises in any one or more of the following ways:

(*a*) By granting a loan.

(*b*) By guaranteeing a cash credit, overdraft or fixed advance with a bank.

(*c*) By paying a subsidy for the conduct of research or for the purchase of machinery.

(*d*) By subscribing for shares or debentures.

(*e*) By guaranteeing a minimum return on part of the capital of the joint-stock company.

(*f*) By making a grant of favourable terms of land, raw material, firewood or water, the property of the local Government.

Section 12 empowers the provincial Government to appoint its own directors to control the assisted undertakings. Such a close and organic association of the provincial governments with the industrial and commercial development of their provinces is absolutely necessary at the present juncture.

The establishment of an Imperial Tanning Institute modelled on the lines of the Leeds Technological Institute is an important desideratum. The teaching of the higher technology or leather manufacture, the principles of applied Chemistry useful for scientific investigations in leather manufacture, the actual demonstration of the manufacturing processes involved in the turning out of heavy leather manufacture and chrome leather making, the actual testing of the suitability of the different tanning materials, and the carrying out by research workers, of different experiments in order to turn out new kinds of leather, have been neglected up till recently and the small tanning factories could never hope to accomplish even a third of the task outlined above. The Research Laboratory of these factories was on a very modest scale and with one chemist and one practical tanner and limited financial resources nothing could be accomplished. Immediate profits and not ultimate development was always the guiding motive. The importance of scientific research and its relation to industry has never been realised by the private firms. The marking out of new paths, the selection of new ways of manufacturing industrial products and the introduction of scientific economy in the existing order of things are important and they can be accomplished by research workers alone highly trained and skilled in the art of experimenting. Free from the cares and distractions of competitive industry these research workers can accomplish very

valuable things and it is only when scientific research and industry work hand in hand that success can be achieved.[1] India unfortunately lacks such a strong private association as the Federation of the British Industries among whose manifold activities the carrying out of scientific research to help the onward march of industries is one essential object. Although the Indian Science Congress has been doing useful work its work is purely of an academic character and is not of much practical help to industrialists.

To some extent the Government of India did facilitate research work in the making of tannins and its starting of the Calcutta Research Tannery was a move in the right direction.[2] The activities of the Calcutta Research

[1] Davy by his researches laid the foundations of modern electro-metallurgy. Faraday's researches on electro-magnetic induction provided the germs which developed into the modern electrical industry. Cavendish by his researches proved the possibility of sending electric sparks through air and demonstrated the production of the nitric acid. Stevenson's steam engine and Arkwright's spinning genny are the results of researcher's work.

[2] It would be interesting to relate the growth of the Cawnpore Government Harness and Saddlery Factory here. Before the Mutiny of 1857, the E. I. Company had its military requirements chiefly supplied by the native leather manufacturers of Cawnpore, but this trade was disorganised during the Mutiny days and supplies had to be obtained from England but as these were not always satisfactory, the military authorities thought it best to start a small experimental tannery on European lines. This tannery under the guidance of Captain Stewart turned out leather of promising quality. He was sent to England in 1867 to study the theory of tanning and acquire some useful practice. In 1869 he returned to Cawnpore and started the Government Harness and Saddlery Factory to produce the leather required for the British Cavalry, Batteries and other Government Departments of Bengal, United Provinces and the Punjab. In 1880 the firm of Cooper Allen & Co., was started and its staff received good training from the Government factory. From 1883 it has been supplying the boot requirements of the Army to the Government.

The Government of India should give up its policy of encouragement of European manufactures alone. There is no reason why Indian-managed factories which can work up to the requirements of quality and standard set up by the Government should not also be patronised. Owing to the war there was a great demand for leather goods and the Government patronised the Cawnpore factories while factories at Madras, Gwalior 'and Cuttack were producing such leather articles as the Government required.

Tannery can be classified as follows:—(*a*) Investigations on raw materials and tanning methods, (*b*) the training of apprentices, (*c*) assistance to the tanning trade. The equipment of the tannery is as follows:—(*a*) A laboratory

Mr. K. A. Peerbhoy says, "The Cawnpore European factory was supplying 12 times what it used to supply during peace times and if even one-third of the supply entrusted to them was distributed at other industrial centres the result would be appreciated and the purely Indian Industry would receive some share of the encouragement which it ought to get. At present it is languishing by reason of the neglect it suffers through partiality shown for the European manufacturers at Cawnpore. *Vide* his evidence before the I. I Commission.

Also refer to the evidence of Mr. G. A. Chambers before the I. I. Commission.

The following table shows the purchases of tanned hides and leather from outside sources other than the Government Harness and Saddlery Factory, Cawnpore:—

Hundredweights.

Sources of receipt.	1914-15.	1915-16.	1916-17.	1917-18.	1919 June.
	Cwts.	Cwts.	Cwts.	Cwts.	Cwt.s
(1) Messrs. Shevan & Co.	97,728	299,246	306,994	463,537	177,366
(2) Sir A. Peerbhoy & Sons, Bombay.	...	109,648	364,636	219,178	...
(3) Cawnpore Tannery	...	...	..	128,168	138,863
(4) United Provinces Tannery.	...	...	...	92,738	131,798
(5) Bombay Rough Tanned Hides.	...	...	159,297	433,963	96,244
(6) Australian Imported Leather.	2,399	166,986	457,003	326,501	15,900
(7) Sheep skins local Purchases.	6,461	8,404	7,829	10,299	20,251
(8) Total outside Purchases.	108,528	584,284	1,295,959	16,74,384	564,522
(9) Harness Factory's own production.	851,111	1,525,618	1,685,402	17,99,374	593,659

It is not only in the case of leather manufacturers that this sort of preferential treatment towards European manufactured articles or articles manufactured in India by Private European firms can be noticed. The Government of India had to yield to the wishes of the representatives of the people in the Legislative Assembly and consent towards the starting of the stores purchase committee in spite of the recommendations of the Inchcape Committee. This may place large orders in India and in course of time even private firms may imitate the example of the Government and place orders in the hands of the Indian manufacturers.

fitted with up-to-date apparatus for the conduct of research and analytical work in connection with the applied chemistry of leather manufacture. (*b*) The Demonstration tannery is installed with a set of chrome and vegetable tanning machinery and vats. Tanning on a semi-commercial scale is conducted in the tannery. But unfortunately the idea of the Imperial Tanning Institute has been given up due to stringent financial conditions. But the sooner a beginning is made in this direction the better for the leather industry and trade.

The Government of India at present favours the Cawnpore factories only and there is no reason why it should not bring about healthy competition between different provincial factories by uniformly patronising all leather factories when ordering its requirements.

The provincial Government of Bengal should extend its patronage to this tanning combine which would manufacture some portion of its finished leather. It should look to the development of the combine's factory and give solid support by having its requirements of the Police, Excise, and Customs Departments manufactured here. It should publish a statement of its requirements and all municipalities, District Boards, Port Trusts and other quasi-public bodies should also state their amount to the combine to manufacture such good quality articles as come up to their requirements. They should for a few years at least undertake to pay a higher rate for the combines' articles than those of foreign manufacture.[1]

[1] The Government of Bengal need not think it as an unwarrantable waste of money to pay slightly higher prices for the Indian manufactured articles. Unless such encouragement is given, it is not likely that the combine can flourish. The British shipping industry was thus built up in the 19th century. Encouragement to British Shippers was also given by prohibiting by high tariff the entry of Indian-made goods and Indian-built ships. (See the Evidence before the Parliamentary Committee on Trade in 1821.)

This fixed order of the Government for a number of years means not only security of a market but may also bring about an improvement in the processes of manufacture as the articles have to come up to the required standard. In addition to this the Government should also try to give a small bounty on the export of finished leathers. The chief object of granting bounties is to encourage the production of the best kinds of manufactured leather and to make it profitable to the tanning combine. Perhaps this granting of additional stimulus may succeed in drawing attention towards this industry. Economists justify bounties and as the Indian consumers are at present in a favourable mood to help the efforts of the producers so as to enable them to manufacture goods of a desirable quality, bounties can be granted to some of the leather-manufacturing firms.

Although it can be justified on the above grounds unfortunately the present financial state of the country would not permit this additional burden on the Treasury.[1]

[1] Much can be done in improving the financial condition of the Government of India, thereby enabling it to grant moderate bounties to deserving industries like Iron and Steel, if only it carries out faithfully the retrenchment cuts in the military and railway expenditure suggested by the Inchcape Retrenchment Committee (pp. 60-81). The present railway rates have been increased by 20 to 25% increase on the pre-war rates but still the receipts do not show any encouraging increase except the normal returns due to increase in traffic for the decade. The general price list and incomes have fallen to a great extent but still the railway rates are maintained at an uneconomically high figure. A more rigorous and systematic collection of income tax would give no loophole to many business firms which now escape paying taxation. The reduction of tariff duty on imported luxuries from 30 % to 20%', the increase of export duty on raw jute and tea, the imposition of export duty on petrol and a reimposition of small duty on imported silver bullion and other well-considered changes in the tariff would be fruitful sources of income to the State. The

It would also involve some practical difficulties in the concrete application of the bounty system. Bounties can be easily granted to specific producers in this industry, just as it has been recommended in this instance. But so far as the leather industry is concerned it would be impossible to benefit all producers by one uniform measure. Lastly there is the economists' objection that an industry that is so dependent for its prosperity on the artificial stimulus of state help should not be preserved, but this argument can be waived aside on the ground of national consideration in the deciding of which the help of economic laws should not be overemphasised.

The finished leathers of this combine should be sent to an Agent in London to be properly classified and sold according to the requirements of trade.[1] The present

Government of India seem to have at last realised this and they have consented to appoint a Committee to inquire into the state of taxation. All the above taxation changes can be justified by the soundest canons of taxation. The additional tax on raw jute would be equivalent to 1s. 9d. a cwt. and would be paid by the foreign buyer. The increased tax on tea would amount to ¼ per lb. and this is no serious hardship to Indian tea in the markets of Great Britain where she already enjoys a preferential treatment better than China and Java teas. As regards the tax on petrol the Burma Oil Company would have to pay it and its internal selling price in India is far higher than its C.I.F. price in foreign markets. A small duty on silver bullion would not tax the poor in their attempts at decoration but would go a long way in checking the speculative orgy of the bullion dealers in Bombay. If the retrenchment cuts advocated by the Inchcape Committee (see Report, pp. 17, 70, 99, 256, 248, 292) are loyally carried out there would be out excess of revenue over expenditure.

[1] "This seems to be necessary because the English market always makes low offers for tanned leather of this country and the exporters had to accept them at ruinous sacrifice in preference to getting them back from England or incurring heavy godown charges there. An Agency of this sort should try to buy all available tanned leather from India at fair prices and make firm offers in the English market. The present system of not paying the exporter for their

method of selling " East India Kips " in London is as follows :—Auction sales are held at intervals in London, a sample of the goods being first inspected by the prospective buyer. This is generally done by the buyer's broker. The tanned kips are selected into qualities and weights and carefully catalogued and the buyers naturally select the various " marks " and " average " which suit their particular trade. The small curriers generally buy selected classes at these auction sales. Of late the large buyers are importing direct original bales of these hides. As the improved tanning processes are being adopted by the Indian tanners their chief faults are being rectified and leather of good weight and uniform quality can be obtained.

The Government of India did not till the period of late war seriously concentrate their attention on the development of the leather industry. Except the compilation of monographs as regards the state of the leather industry in the different provinces and the deputing of a special officer to prepare industrial monographs regarding leather curing and tanning of hides nothing else was done. Like E. R. Watson's monographs they have produced no decided and lasting benefit. They are of more academic interest than of practical value and as these are not widely known they have produced no fruitful results. When the intelligence dawned on them that the light tanned Indian hides prove suitable upper covers for army boots and when there was the compelling necessity of war, they commandeered the export trade of raw hides and prohibited the

consignments is a handicap, for the industrialist is not sure of what he would receive. The present system of advances against consignments is bad and there is no incentive at all for the manufacture of tanned leather. *Vide* Mr. K. A. Peerbhoy's evidence before the I. I. Commission.

tanning of raw skins [1] so as to confine the attention of the Indian tanners towards the production of the half-tanned hides needed for the army boots. The Indian Munitions Board made frantic efforts to improve the quality of the raw material by insisting on good flaying and proper treatment of the raw hides in the hands of the leather workers who work out all the preliminary processes of actual tanning. The Indian Munitions Board published a bulletin regarding the right methods of careful currying [2] including curing and the treatment of the hides and skins by the village chamars. Now did it realise the truth of the saying that "one demonstration is more convincing than a dozen monographs." [3] Although peripatetic demonstration was not organised a few demonstrations were held at the prominent slaughter-houses and later on this

[1] In December 1916 the exportation of tanned skins was prohibited to all destinations except the United Kingdom and a notice was issued in Madras and Bombay in May, 1917, forbidding tanners to put goat or sheep skins into tannage except by special permission. Owing to these restrictions the export of tanned skins fell off considerably as the trade returns for 1917-18 show.

[2] Its instructions can be summed up in the following words.— " Flay carefully, remove excess flesh and trim off ends of shanks, tail, etc., lay on the ground in the shade and rub in common salt. Let the hide gradually absorb the salt and eventually dry. More often without putting in the sun, dry, by hanging in a frame if necessary and when quite dry, fold it down the back with the hair inside. Handle all the stored hides once or twice a week, searching for insects or hair-slip. If such are discovered add a little more salt and rub it in carefully in the detected spot." These instructions are clear, simple, and useful and can be easily followed even in the jungles.

Also refer to Mr. W. A. Fraymouth's evidence.

[3] In the Bombay Presidency, improvements in gur-making were mainly brought about by sending gangs of sugar-boilers to the different villages to show better methods of preparing gur.

work was discontinued.[1] This is the chief reason why I have recommended the appointment of touring inspectors who would be capable of actual demonstration also. Until then no real and lasting improvement can be effected in the quality of the hides and skins.

Again the Indian Government has failed to interfere in the matter of railway freights when aggressive industrial rivals like America and Germany were competing with the Indian manufactured boots and shoes in the Indian market itself.[2] The Government of India failed to induce the Railway companies to modify the railway tariff with special reference to the needs of this industry. The present policy of the railway magnates "industry is dead, long live the export trade" is prejudicial to the interests of the indigenous industries in general. All traffic to and from Industrial works should be subject to the same rate, per maund per mile as the same articles are charged to and from the sea-ports.[3] Those who

[1] After the Industries Department has been organised some improvement has been effected and now demonstrations are being given by the permanent staff organised solely for the purpose. The Bengal Government's Report on Industries published in 1923 says that "demonstrations were given at Chittagong, Bholepur and Bankura."

[2] Dr. Sir N. R. Sircar says, "the Government have seen with equanimity instead of resorting to interference the destruction of much of the advantages of favourable markets by the disastrous incidence of railway rates on raw materials and manufactured goods." *Vide* his written evidence before the I. I. Commission. Mr. N. S. T. Chari says that his boots and shoes though manufactured in Bangalore could not compete with foreign boots and shoes in Calcutta and other centres as he was far away from the market. Mr. Chambers says, "the extension of our business in North India is considerably handicapped by high railway freights, long delays and also by thefts on railways."

[3] The differentiation made between the raw hides and tanned leather by the railways is beautifully pointed out by Mr. Vikramadit Singh. He says, "the railway will carry raw hides from Delhi and Cawnpur to Howrah at 7 *as.* 6 *p.* or 5 *as.* 3 *p.* per maund, respectively,

frame the tariffs have never hitherto considered the possibility of industrial development following favourable railway rates.[1] The principles of "waggon-load and long lead" which dominate the construction of the railway tariffs should be modified in their application to the indigenous manufactured goods. The Government of India, *i.e.*, the Railway Board has no doubt issued a circular, dated May 18th, 1915, to the Railway Companies, pointing out that the development of industries would increase the business of the railways and that the railway administration should do much for their encouragement by the quotation of favourable rates for the carriage of raw materials and of finished products. They were also asked to co-operate in making a special endeavour to do all that was possible for the encouragement of the Indian industries. But these excellent intentions of Government get whittled down to precious little while filtering through the

equal to ·09 pie per maund per mile. But to bring hides from Delhi to Cawnpur, a distance of 271 miles only, one has to pay 5 *as.* 8 *p.* per maund or ·25 pie per maund per mile. Think of its absurdity; annas 5·3 to carry the hides to 663 miles between Cawnpur and Howrah but annas 5·8 per maund to carry the same hides to 271 miles between Delhi and Cawnpur. So as to make it impossible that the leather should be tanned in this country and afford employment to our workpeople, the rate charged for leather common or rough in bales from Cawnpur to Howrah is one rupee per maund. It costs there 5¼ annas per maund to take the raw hides from here to Howrah but one rupee per maund to take the tanned leather over the same distance."—Evidence before the I. I. Commission.

Mr. A. Carnegie of Cawnpur says the same thing. "At present the freight on tanned is very much more than that on raw hides and thus the tanning of hides for exports would be heavily handicapped from the start."

[1] "Germany and Belgium have used the railways as an instrument for the development of their indigenous industries with most wonderful results"—*vide* Lloyd George's opinion quoted by Mr. S. C. Ghosh in his pamphlet "State Management of Indian Railways."

administrative strata of the railway companies. Before the three Committees of 1918, 1921, and 1922, namely, the Indian Industrial Commission, the Railway Committee and the Fiscal Commission, the witnesses have spoken most disparagingly of the railway rates policy. The proposed Rates Tribunal should give a fair judgment as between the trade and the railways and should arrange the railway rates on a much sounder foundation as cheap transportation facilities are the very foundation of industrial prosperity in any country.

The forest policy of the Indian Government was anything but satisfactory from the point of view of industrial development. The Indian Government knew pretty well that our forests are large storehouses of raw material stocked with hundreds of tans, dyes, lac, and cardamoms but no properly constituted research department was attached to the Forest Department and not until the Babul bark supplies were completely exhausted at Cawnpur, did the Government wake up from peaceful slumbers. The need for half tanning a large quantity of raw hides in India to meet the requirements of the British War Office, gave them the real incentive and systematic scientific experiments are being carried on since that time to discover new tan stuffs. Various resources of raw materials exist and the possible utilisation should be attempted by pioneer factories just as the Mysore Government [1] has undertaken the sandal

[1] Paper industry can be a success in Bengal. There is plenty of bamboo round Chittagong from which pulp can be manufactured easily. Within the last thirty years several paper mills have been started and owing to foreign competition and scarcity of good raw materials, they were closed down. Now the enterprising firm of Andrew Yule and Co. wishes to undertake paper manufacture and it has set up a plant which provides for the crushing of twenty thousand bamboos daily. Labour can be had cheaply and as there is plenty of suitable raw material the venture may be a success if the Government protects it against foreign

wood oil industry and has proved it to be a commercial success. The Indian Government should undertake similar pioneering experiments[1] in the creation of new industries and the possibility of success should be demonstrated to Indian private enterprisers.

The Provincial Government of Bengal is seriously handicapped for want of adequate funds[2] but that should be no reason why profit-yielding measures such as the above should be given up. Industries have been rightly placed in the list of transferred subjects and a minister in touch with local needs and aspirations is at the head of the Department but the starving of the transferred departments is too well known. Wisely devised schemes for the starting of the Imperial Tanning Institute and a model Boot and Shoe Factory have been relegated to the back ground. There is unfortunately a general belief in the minds of the Indian public that Indian interests are

competition. Also refer to the half-yearly report 1923, of the Bengal Paper Mills & Co., which complains of foreign competition.

Since these lines have been written the Tariff Board has recommended the manufacture of paper from the bamboo peels and try the use of soda process for the manufacture. It has made specific recommendations to grant help to the Carnatic Paper Mills, as well as the Indian Paper Company of Gauhati. See the Report on the Paper Industry.

[1] The Research Institute in Dehra Dūn and the Imperial Institute in London are doing yeomen's work in realising the commercial possibilities of minor forest produce. The recommendations of the Retrenchment Committee aim at crippling this research work and if carried out it would postpone the scope of establishing the trade in forest produce on a scientific basis.

[2] It must be admitted that the Provincial Governments should be granted more resources so that they might discharge their duties properly and aid the development of national welfare. Only direct taxation is left to the province of the Provincial Governments and the Central Government should not further encroach upon the field of direct taxation. Indirect taxation lies solely in the hands of the Central Government and it has also two of the most important direct taxes, namely, income tax and super tax in its hands.

not considered in the way they ought to be done. Unless the existing railway tariff and policy is altered—equal treatment given to Indian traders and the free grant of Government assistance not only in the shape of protective duties alone but in many other ways—the Indian people will no longer put faith in British justice.

Apart from politics or sentiment there is an urgent necessity why the Indian Government should turn its attention to the leather industry. The much vaunted agricultural prosperity of Bengal is fast vanishing. The population of Bengal is increasing and there is much economic pressure on agriculture, and the old prosperous days of agriculture can no longer be expected in the future. Only a few fortunate members of the middle class get occupation in the professions or Government service and the rest are eagerly searching for their livelihood. The Government should realise that it is better to train them for industrial situations and find for them new avenues of employment. The worst effects of unemployment in this country are not to be seen in the way of privation and physical deterioration. The enforced idleness and the lack of opportunity of useful work have their demoralising effects. It makes the unemployed lose the habit of self-dependence. "Maintenance without employment is demoralising and unemployment without maintenance is more certain in its demoralising effect." The mental distress is becoming oppressive. The standard of life is progressively declining. There is a bitterness in spirit which may end in revolutionary activity. The outlook of the unemployed on society is entirely changed. Political unrest resulting from unemployment is a noteworthy feature of the existing situation in India. These unemployed form suitable material for the operation of the extremists. The present condition is forcing them towards

the present political situation. They rightly or wrongly think that this situation can be ended by a change in the Government and they have an implicit belief that Swaraj would automatically solve this problem of unemployment.

It is poor statesmanship to go about without any solution of the present unemployment situation. The extent of the problem needs careful study and it is unwise to expect that greater industrialisation of the country would ultimately claim these as workers. It cannot be considered as a good remedy. The Government of India has altogether failed to appreciate the gravity of the present situation of the unemployed classes. Its refusal to accept a reasonable responsibility for the unprecedented distress arising from rapidly increasing unemployment places upon the joint families an improper and unfamiliar burden. The Government ought to reconsider their decision and accept a national responsibility for conditions which are national in their cause and the over-literary educated youths are the products of their own created universities. It is more essential to our national well-being to have our workers employed than to buy the surplus products of foreign competitors at a cheap price.

The Indian Government is doing useful work in publishing the Indian Trade Journal though it must be admitted that the bigger firms alone are in a position to take full advantage of the information given. More must be done by the Government in the matter of securing a wide market for the tanned hides and skins by sending trade representatives if possible.[1] A thorough representation

[1] Indian Commercial Attachés to the British Consulates are absolutely necessary and they should be able to collect useful industrial and commercial information for the use of the Indian' industrialists at home. They should be posted with complete information about the

of the tanning industry, in Canada, Australia and South Africa will not fail to secure a profitable market for the tanned hides and skins.

The Government of Bengal has to help this combine by grant of free land so that the arathdars' godowns and the combine may be located in close proximity to each other. The Corporation of Calcutta resolved to remove the arathdar's godowns to the fringe area outside Calcutta but this resolve was kept in abeyance during war time. An effort should be made to provide land for this tanning combine and the arathdars' godowns in the area lying south of the Sealdah Station and the railway company should allow a siding and offer other facilities to it. Then the Corporation's object of removing an annoying trade from the midst of the inhabitants' quarters would be accomplished. The arathdars would have the advantage of selling their raw material to the tanning combine. The tanning combine would have the advantage of access to the raw material, access to the Calcutta market where its manufactured products can find a ready sale and finally it would find ample room for an expansion of its business. Every facility should be given by the Government to this combine in the matter of purchasing land.

In no other industry has invention made such rapid march as in the leather industry specially in the boot and shoe-making business. Of more than 100 operations in a boot factory more than half of them can be performed by machines. Machinery was employed from the middle of

various trades and industries of India and with the tariff and trade regulations. The Statistical department of the Government of India should collect more reliable figures and publish them not only in English but in the Vernacular languages. As the I. I. Commission says "the comments of the statistical department are unnecessary and not of material use."

the nineteenth century and it has completely triumphed in every line of the leather industry. Before 1830 machinery was not employed in the leather industry in any country, not even America. Very few tools were utilised in the making of boots and shoes. The *mochis'* implements are twelve in number : (1) The *piri* or wooden board or the *sil* or stone on which the leather is placed, (2) the *khurpa* is the chisel for cutting or finishing leather, (3) the *lohia* is the pounder, (4) the sewing borer is called the *pegel* and the needles are known as *katari*, (5) there is a small square made of horn used for making the leather before cutting, (6) the horn in which the lard is placed, (7) the *shrishtak* is for applying lard to the lowest upper edges of the sole, (8) the *ghirudhap* is used for pressing and making the edges of the heel and the shoe, (9) the *haddibom* is a small rod used for polishing, (10) the smallest last known as *bochani* and the bigger one the *barapatra*, (11) the *jharnura* for boring and fitting the rings, (12) a hammer known as *lohia hamor*. Even now the very same tools and processes are used for making the shoes by the *mochis*.

While in western countries machines were being invented to perfect these processes, the Indian manufacturers had solely depended on the methods taught to them by their predecessors. They had not been active in improving the processes. There is an intimate connection between the brain and the tools used by man. As Mr. O. G. S. Crawford says,[1] "like language tools are the incarnation of intelligence. Tools are extra-corporeal 'limbs' or consciously devised extensions of our personality." Here then lies the key to our backwardness in industrial matters. If there had not been any progress in industrial matters it is due to the fact that there has been no improvement in the tools or "external

[1] Mr. O. G. S. Crawford, "Man and his Past" (Oxford University Press), 1921.

limbs" utilised in industrial processes. The machine tools have not been devised nor has been any widespread adaptation of them till recently and hence our industrial backwardness. Indian leather industry is still the business of man aided by the hand tool. Progress there would be only if there is co-operation between man and the machine tool. It is conscious creative evolution in industrial processes and not mere imagination and passion that would make us an industrially forward nation. The following quotation from Hazard's "The organisation of Boot and Shoe Industry in Massachusetts before 1875" would give an idea of the gradual introduction of machinery in the boot and shoe industry and how this specialisation with the help of machine led to the factory stage of production, in the Industry itself. "Up to about 1840 the shoemaker had used mainly just such tools as had been used for centuries. Then there came a little skinning machine, run by hand and not very satisfactory to the older men accustomed to skinning with a regular knife. The next machines to be invented for boot and shoe work were the stripper for cutting up sides of sole leather and a leather rolling machine which came in 1845 to save both time and strength formerly used in hammering the sole leather on a tapstone.

The use of different shapes and widths of block lasts came in the early 40's. Shoemakers no longer depended upon "instep leathers" for making "fulls" and "skives." Substantial patterns came into use. Sole patterns which gave uniformity of shape and width at ball and shank and patterns for rounding the soles after they were stitched were invented. Trous for polishing the edges came into use. Heels were put on women's shoes again and men began to specialise in heeling. Several styles of pegging machines, and a machine for cutting up pegs had been patented and put in general use by the time the sewing machine invented by

Howe in 1846 had been adapted to upper leather work on shoes by John Brooks Nichols in 1852. There was the "doy thread" machine with a shuttle and two threads for the lighter upper work and the "wax thread" to do chain stitching for the heavy work of "sidding up" bootlegs. "These sewing machines even then impressed people with their significance. Instead of merely making things easier or a "bit more speedy" they produced work which could not be matched by hand in either speed or appearance." [1] The following were some of the prominent English Industrialists mainly responsible for the brilliant mechanical exploits and for making the leather trade developed to such a large extent—Thimmonier, Howe, Blake, the brothers Keats, Mills, Goodyear, and Cowburn and Waller the leather artist.[2] The utilising of machinery has led to the saving of labour and the lesser cost of production thereby. It has led to an increased division of labour. The Indian Government should facilitate the purchase of machinery required for use in this combine.[3] The Madras

[1] *Vide* Leno, Boot and Shoe-making, p. 160. The different machines that can be used in the different lines are described in pages 167 to 211 of the above book and this type of machinery can be obtained from the English and American Shoe and General Machinery Co., Ltd., London.

[2] Machines not only for unhairing and fleshing of raw hides but also for the crushing and grinding of tanning materials can be had.

[3] It is not the leather Industry alone that is handicapped by reason of our inability to manufacture the right kind of machinery. Prime movers, typewriters, sewing and knitting machines and parts, boilers, mining and electrical machinery, machinery for rice, pepper, flour, sugar, cotton, jute and silk mills and tea factories are not manufactured in this country to any extent. Agricultural machinery, cutlery, dairy appliances, builders ironmongery and telegraph instruments are manufactured to a small extent. Of late one factory was started to manufacture Jute Mill machinery. India possesses only engineering firms capable of producing machine tools, certain parts and sections of machinery. See Report of the I. I. Commission, pp. 51 and 55.

Tannery was the first to employ machinery and it was found suitable for working. It was also employed in bark tanneries. Workshops equipped and fitted with modern machinery and a large capital are necessary if this combine is to undertake the business outlined in the previous pages, namely, the manufacture of different kinds of leather suitable for different purposes and of boots and shoes and leather articles required by the mills. Provided these various departments are under the control of the experts there is no reason why the tanning combine should fail to achieve extensive commercial development and prosperity. Good quality leather and articles should be aimed at and its future essentially depends on the production of highly finished articles of first grade quality. It is merit and money that survive in the long run.

The Indian Government should also exempt the tanning combine for a few years from paying income tax until it is in a position to declare six per cent. dividend at least

Another reason why localisation of this industry is advocated is the fact that subsidiary industries that may grow up may group themselves round this area. Bye-products like horns, hoofs, bones, hair and bristles are usually thrown away by the butchers. Some collect them for exportation to the Straits Settlement and the United Kingdom where ornamental work, shoe horns, scoops and drinking cups are made out of buffalo horns. Combs, bangles and hairpins can also be turned out of buffalo horns. The horns of sheep and goats are more white and transparent than that of buffaloes, and are used in comb-making. On account of religious objections the Hindus do not like to use the cow horn. The bones of the legs of cattle may be utilised in making combs and this industry exists in Amarapura near Mandalay, in Burma The hoofs are useful for the extraction of neat's

foot oil and in Rangoon this preparation is well-known. In Dacca buttons are manufactured out of horn and the Indian Munitions Board encouraged this industry to a great extent. In Jaipur the longer and more straight horns are utilised for the making of bows and arrows. These industries can be taken up successfully and started as subsidiary industries.[1] Well cleaned and washed calves' hair can be utilised for making cloth, carpets and felting. The intestines of sheep is utilised for the manufacture of cords or strings for musical instruments. Although there are immense possibilities in this direction very little work is done in Bengal in this direction. The only place where horn work is done is Serampore in Bengal where combs, bangles, necklaces and snake bangles are prepared.

With the exception of waste liquors of the tanneries everything else can be put to some use. The spent tan stuffs of the leather combine can be utilised for preparing valuable pulp for cardboard manufacture. This was first demonstrated by Messrs. Guest and Court in 1881. But an economical and effectual method of pulping and bleaching should be introduced. A destructive distillation of these spent tan stuffs will yield a product very rich in tar and inflammable gases that could be burnt to afford motive power. This idea was first conceived by Mr. J. B. Hoyt of New Jersey in 1852 and adopted gradually by all the American tanneries. Properly preserved hide and leather waste can be converted into glue of

[1] This was also the experience of Mr. M. S. Das of Cuttack. He developed the manufacture of combs out of horns in his factory and there is a wide market for these combs." *Vide* Evidence before the I. I. Commission.

excellent quality.[1] The lime waste can be utilised as manure.

It must be remembered that it takes a long time [2] to establish these subsidiary industries in the vicinity of the leather combine's area. Bengal needs a second Chatterton who will boldly venture and exploit the possibilities of leather manufacturing and display a commendable zeal in the industrial development of the country.

From an economic point of view the utilisation of these bye-products would lead to a double benefit. Firstly, more labour and capital can be employed in a profitable industry. Secondly, the economic return from the utilisation of these bye-products would materially increase the profits of the tanning industry. This would add to the economic welfare of the leather industry as a whole.

[1] The Madras Director of Industries reports that these industries can be successfully developed out of the spent tan—stuffs.

[2] A few years ago it was hoped to establish 17 subsidiary industries round the area of Jamshedpur but it has not yet been found possible to do so. The classical example of the development of subsidiary industries as a result of localisation of one industry at one spot is the Lancashire Cotton Industry. It led to the development of textile machinery and the mechanical engineering industry.

15

CHAPTER IX

Leather Manufacture

> "There are two classes of industrial enterprises which can be taken up in this country. The first class and this by far the largest class consists of those industrial enterprises which can be started by the importation of machinery and experts as first managers. In this class of work we have to imitate and not initiate."
>
> *M. M. Malaviya, Minority Report, I. I. Commission, p. 342.*

It has been remarked in a previous chapter that there is no reason why leather manufacture should not be successfully established in Calcutta as has been done in Cawnpore. The history of the Government Harness and Saddlery Factory and that of Messrs. Cooper Allen & Co., has been indicated in a footnote on a previous page. But certain conditions were helping the successful localisation of the leather trade and the manufacturing industry in their hands. Cawnpore is a suitable centre for the collection of raw hides. In the beginning there was a plentiful supply of babul bark. To-day although the local supplies of this babul bark have been exhausted, they are being obtained from the neighbourhood and thanks to the excellent railway connections the cost of supply is cheaper than that of turvad of Madras.

The Indian Government always viewed their efforts with favour and offered a steady market to them by purchasing its military requirements. Lastly it must be acknowledged that the European firms were enterprising

to a great extent [1] and to the combined advantage of these factors must be attributed the success of leather industry in that town.

During the war time the Cawnpore leather manufacturers and a few other manufactures (the Sion Factory of Bombay, the Chrome Leather Company of Pallavaram, Madras) took advantage of the restricted imports from England of certain classes of leather goods, *e.g.*, European boots and shoes, saddlery and miscellaneous leather goods. The absence of freight and the disorganised conditions of trade led to reduced imports and provided them with an opportunity to capture the home market to a certain extent.[2] Again the Government demand for leather and leather articles gave

[1] These factories work on a considerable scale and employ machinery as the leather manufacturers do in Europe and America. Their activities are not confined to the production of the Government requirements alone but they produce leather of a very high class.

[2] *Vide* the evidence of Mr. R. J. Vimadalal, Leather Merchant, Navsari, Bombay: " The price of all varieties of leather imported into India has arisen quite abnormally owing to the war and a great lift has consequently been given to many branches of Indian Leather manufacture."

The following table conveys an idea of the restricted imports into India:—

Value in Rupees (1000).

Year.	Govt. Stores.	Boots, Shoes and Leather.	Belting.	Hides and skins tanned.	Saddlery Harness.	Unwrt. Leather.	Other Sorts.	TOTAL.
1914-15	167	4,775	1,985	1,096	289	461	1,086	9,859
1915-16	15	3,152	2,498	1,293	148	776	1,106	8,988
1916-17	61	4,602	3,046	1,413	244	761	1.604	11,721
1917-18	169	2,422	4,012	2,010	163	475	1,154	10,435

full scope and extended employment to almost all tanneries and leather-manufacturing factories. Army boots and mundah shoes, leather waist coats and gloves were required in large quantities.[1] The history of the development of the Cawnpore factories due to this Government contract will be out of place here. Madras and Bombay firms also shared to a small extent in the supply of Government requirements and Bengal would have had shared some benefit had there been manufacturing factories doing business on a large scale.[2]

But thanks to the discriminating action of the Indian Munitions Board and its refusing priority certificates for the imports of such leather articles as could be successfully manufactured in India it led to the manufacture of these mill requirements which were hitherto supplied by the United Kingdom. Up to 1916, the stock of leather requirements of the Jute mills could be maintained from supplies from Great Britain. As soon as this supply was cut off, considerable quantities were imported from Australia and Japan and much impetus was given to the local tanners to manufacture these leather requirements and to produce things of improved quality. Leather belting began to be successfully manufactured and when good selected hides were employed[3] in their manufacture these finished products could and did satisfy the mills to a certain extent. But much specialisation and improvement in quality was needed to replace the imported leather

[1] Leather waistcoats and leather gloves were supplied in large quantities by Madras manufacturers.

[2] 25,000 pairs of shoes a month were supplied by the Calcutta tanneries. A large quantity of mundah shoes were supplied from Calcutta.

[3] Both the National Tannery and the Berhampore Leather Factory turn out good quality belting made of chrome leather.

belting.[1] There are already a large number of mills doing business round Calcutta and with the progress of industrial development in the country more will arise and there will be a steady market for good quality leather belting.

Boots and shoes are also imported to a great extent annually to the value of 400 thousand pounds[2] (sterling). There is no reason why Indian factories should not capture a large portion of this trade. Bengal's demand for boots and shoes is always increasing first because in a water-logged country as Bengal there is always a demand for chrome shoes and secondly the habit of wearing shoes is increasing year by year. It is not big leather factories, producing boots and shoes with the aid of machinery alone that have a bright future. Provided the mochi reforms his method of manufacturing shoes, employs sewing machines and mechanical appliances for cutting and employs well tanned buffalo leather for the soles and other parts of the bottoms of the boots and shoes, his sale of European pattern shoes will be on the increase.[3] With the number of tanneries on the increase

[1] The chief defects of the Indian-made leather belting according to the Directors of the Ordinance Factories are as follows :—"Though chrome leather belting is very satisfactory, belting made out of vegetable-tanned leather is not of uniform thickness, the cement joining is not often good and stretch unduly and unevenly."

[2] Boots and shoes of materials other than leather are also imported annually into India.

1914-15.	1915-16.	1916-17.	1917-18
Rs.	Rs.	Rs.	Rs.
670,000	598,000	821,000	413,000

[3] Or as in the case of Cawnpore a big factory should have a cutter's shop attached to it which will supply cut components to outside firms for all the important items they are engaged in manufacturing.

well tanned hides and skins will be available at a cheap rate. Only a reform in his methods, improvements in his tanning and the prospects of some social status are needed to accomplish this.

Boots and shoes can be manufactured in large quantities. It is merely a question of plant, capital, and efficiently organised labour. As J. B. Leno says, "the great difficulty in this line of industry is found not in production but in the disposal of the manufactured shoes, for instance orders for military work that took a year and more to complete could if necessary be and often be satisfactorily performed in as many days. An efficient staff of travelling salesmen who solicit custom, force business, and enter into sound transactions and are honest are required. Without such a staff the manufacturing of boots on an extensive scale is a mistake. Practical men should be at the head of each department. Accounts must be efficiently kept. Wastefulness should be reduced to a minimum and punctuality secured at any cost."[1] If these instructions are clearly followed Indian manufactured boots will not only be the best in the market but be without a rival.

America has been able to progress so rapidly in her leather industry and other industries also as the American Government collected every kind of information relative to markets for disposal of goods, purchases of raw materials of manufacture, cost of production, wages, and tariffs. The development of American tanning and leather industry can be gathered from Bishop's "History of the American Manufactures." According to him the first tannery was started in New England at Lynn in 1629. In 1635 the manufacture of shoes commenced and

[1] See J. B. Leno "Boot and Shoe Making," pp. 228-230.

the State took ample precautionary measures for its rapid development—some of which were the following :—"Every hide must be sent to a tannery under penalty of a £12 fine. Leather searchers were appointed by each town to collect hides. Exportation of hides from the colonies was prohibited." By 1650 Massachusetts was manufacturing shoes for sale in the other colonies. A large number of handicraftsmen settled in Massachusetts from England bringing with them the traditions and legends of the craft and these people profoundly influenced the development of the boot and shoe industry to a great extent.

These three cities along with New York city produced one half of the total value of boots produced in the U.S.A. in 1860. Large scale establishments led to the investment of more capital and this could be seen by comparing the 1914 and 1860 figures relating to capital investment.

	1860.	1914.
(1) Average capital per establishment...	$ 1,800	... $ 125,000
(2) Average workers per establishment...	$ 10	... $ 105
(3) Output per worker ...	$ 740	... $ 2,383

The total number of establishments in 1914 was 1,960. The wage earners were about 206,088. Capital invested in the industry amounted to $297,609,000. The value of products was $590,028,000.[1]

Protective duties were levied on boots and shoes into America from the beginning of the latter half of the 18th century. The American Civil War and the exclusion of foreign goods gave a great impetus to the industry and Lynn soon became famous for its boots and

[1] *Vide* Statistical Abstract of the U.S.A., 1920.

shoes. By the beginning of the 19th century English boots and shoes were excluded from the home market. The introduction of the steam power and the McKay's sewing machine made the boot and shoe industry a factory type industry and " modern " manufacture dated from about 1855. This led to a lowering of the price of the shoe to $\frac{1}{11}$ of the price of the hand-made shoe and this cheapening of the price led to increased demand on the part of the people.

From 1875 there was more intensive production on a large scale. The use of the good year's welt machine and an alteration of process, more acute competition, an ever increasing variety of styles to capture the market, great attention to economies in organisation and the use of bye-products and the like are the important features of modern factory type boot and shoe industry of America. The progress of the modern American boot and shoe industry is the progress of three things, the machine, the corporation and the city. The advent of machinery and its influence has already been related. Three cities, Lynn, Philadelphia and Haverhill are the important cities in which the leather manufacture is localised to a large extent.[1]

American manufacturers produce shoe machinery of glace kid and box calf and of last and other requirements of shoe manufacturing and are selling increasing quantities of them in every country of Europe. The manufacturers of tanning machinery have successfully introduced their apparatus and machinery in Germany and England. "This they have been able to do in spite of the fact that the Maple wood required for the lasts is exported in a crude, and unfinished form.[2]

[1] *Vide* B. E. Hazard," The organisation of Boot and Shoe Industry."

[2] *Vide* Hough," Practical Exporting."

The chief characteristic feature of the American leather industry is its mass or quantity production. European manufacturers produce small lots as distinguished from the mass production of the American manufacturers. There is much of specialisation in the products of the United States of America—" A manufacturer of women's shoes seldom manufactures men's shoes. A manufacturer of high grade women's and children's shoes seldom manufacture any other shoes. The manufacture of boy's and girl's shoes is again a specialised industry. In Europe more often than not all kinds are produced in one factory." The surprisingly healthy growth of the American export trade in boots and shoes is chiefly due to this feature.

Besides this specialisation in production, American manufacturers supply 7 to 8 different widths and in each width there are full range of sizes and half sizes. In Europe and other countries no such elaborate assortment of sizes and widths have been available.

The example of German manufacturers is also worthy of being copied by us. The important German firms and manufacturers always supported capable and fully qualified men to gather up and report the desired information. If at all large Indian boot and shoe factories are to succeed in developing their business they have to adopt the course indicated by the American and the German manufacturers.

It is indeed regrettable to record that the Government of Bengal has abandoned the starting of a model boot and shoe factory at Calcutta. Though the need for this is not so pressing as in the case for technological institute where industrial training of high order can be given and technological experiments undertaken and

other trade problems successfully tackled by scientific experts and practical people, it would have given great impetus to the starting of small-scale factories by private enterprise.

It is a well known fact that Dr. Sir N. R. Sircar's tannery is successfully manufacturing boots and shoes which find a ready sale in the market. The boots and shoes of Mysore, Gwalior and Utkal tanneries are also being purchased eagerly by the Calcutta buyers. The "Tiger Brand shoes" manufactured by the Indian Leather Manufacturing Co., Ltd., Kidderpore, with the help of boot-manufacturing machinery have captured the Calcutta market. Their Brogue shoes, Derby and Oxford shoes, Balmoral boots and patent leather Court shoes and slippers are very fine and are in no way inferior to the imported foreign foot-wear. The starting of boot factories is a great desideratum at present and if the Bengal Government is to provide a market for them for the first few years there is every hope that they will soon be flourishing concerns. If these new concerns are not to be strangled in their early stages the retention of the present import duty on imported manufactured leather goods is advisable. But for a rapid development and prosperity of the Indian Boot industry more bark-tanned sole leather should be produced.

Pickers for jute and cotton mills to the extent of more than half a millon are required annually. Indian cotton mills used to absorb one and half millions before the war and their present requirements owing to increase of work and falling off in the quality of pickers, have risen to two and half millions.[1] These pickers were made solely in

[1] *Vide* the Report on Hides and Skins, Indian Munitions Board publication.

England and the Buffalo Picker-Making Association used to supply 90 per cent. of the demands for pickers of the whole world. Pickers are made by machinery from raw hides or leather and these are soaked for 6 months in oil and after that put away to season for another six months, before they are ready for use.

Organised attempts should be made to produce these pickers. At first handmade pickers of Ahmedabad [1] have been tried but their quality was not of a high standard. Being exceedingly cheap they were used as a stop-gap by the cotton mills during the war time. Messrs. Graham & Co., of Calcutta and one or two other firms produce pickers which are used in the jute mills but the supply forms only a small part of the total demand. Besides there is great need for improvement in the quality so that it may last for 1000 hours as the British pickers do. It is not impossible to reach the high standard of imported articles provided matured and seasoned skins are made use of.

Saddlery, harness, and transport gear are imported to a small extent annually into India. So far as saddlery and harness are concerned goods of equal quality can be easily manufactured in this country. The Cawnpore Government Factory, in order to devote its attention to other works, entrusted its business to local firms and trained them to a certain extent. Orders for transport gear were similarly entrusted to local firms but owing to the scarcity of finished leather and as local workmanship was not up to the mark in this line it was discontinued. Some leather shops in Chitpore and Bowbazar in Calcutta are turning out indigenous saddlery and harness

[1] At present the pickers manufactured in Ahmedabad are of excellent quality and are being used widely in the cotton mills.

but these workers require some training in the art of cutting leather into suitable pieces for different requirements.

Some progress has also been made in the manufacture of roller skins[1] that are required for the use of the cotton mills. Roller skins are used for covering the top rollers of the drawing frames, combers, speed frames, ringframes, and mules. In order to produce fine yarn there should be effective co-operation between the rollers and the different kinds of cotton. Lamb skins possess fine grain and are eminently suitable for making roller skins. This is a highly specialised industry which requires light leather and some of the Indian tanneries have succeeded in producing good roller skins and the total Indian production has already exceeded the requirements of the cotton mills and the excess stock is exported to Japan. But here also, as in the case of leather belting, much improvement in quality is needed. The inelasticity, unevenness and lack of gloss in the Indian manufactured skins are the chief defects and attempts should be made to improve their quality.

Considerable progress has been made in the manufacture of sheep skins that are required by the rice mills for polishing rice. Skins measuring 4 ft. by 3 ft. are necessary and the fleece should be full 3½″ long. Burma alone consumes annually about ten thousand skins of this sort and each skin costs about rupees 16 to 18 and a few Indian firms are now in a position to produce good skins equalling the imported skins in quality, but here also some experience in manufacturing is necessary

[1] The following eight firms are engaged in the manufacture of roller skins: Messrs. Skippers & Co., Messrs. Randalia & Co., the Navsary Leather Works, Chrome Leather Company, The Mysore Tannery, The Sion Factory and the Berhampore Leather Factory.

to produce that finish and evenness possessed by the imported skins.

The following table shows the leather requirements of the Bengal mills supplied by the local tanneries (see Leather, Vol. VI, "The Resources of the Empire Series," p. 166).

Articles.	Approximate total consumption per month of all mills.	Approximate quantities now being supplied by local tanneries.
Picking bands	180 cwt	20 %
Belt laces	170 "	12 "
Leather belting	60,000 feet	5 "
Martingale straps	80 cwt	10 "
Pump leather hides, etc. ...	20 "	20 "
Covering leather, *i.e.*, leather on edge, leather on flat.	60	6 "
Loom pickers	58,860 pieces	10 "

Art industries in leather can be undertaken by small capitalists to a larger extent than at present for the scientific tanning processes adopted by Indian tanners enable them to obtain leather which does not emit an unpleasant smell. It is possible to take up, to a larger extent than at present, the manufacture of purses, straps, leather cases, writing pads, cigar and cigarette cases, bags and suit cases, portmanteaus, knapsacks, holdalls, footballs, cricket balls, camera cases, music carriers, luggage labels and artistic blotting pads. No elaborate machinery is required for their manufacture. Some of the intelligent

mochis can be recruited as labourers in the small factories and under expert supervision they can turn out satisfactory articles mentioned in the above list. As Miss Ellin Carter says, "the leather that is to be used for these purposes should be fine and supple, the surface free from blemishes and evenly tanned and the skin of sufficient thickness."[1] Well tanned calf and cow hide will be suitable for these purposes. Fancy articles can be turned out of the skins of the iguanas, hides of crocodiles, alligators and snake skins. Reticules, purses and bags are made of crocodile and alligators' skins. There is a great demand for this kind of ornamented leather and leather manufacturers produce close imitations of these various skins by means of electro-type process. The manufacture of fancy leather goods can no longer be considered as a localised industry of West-End, London, but it is fast becoming a world industry. Mr. J. T. Luckock[2] describes the tools that are necessary for use in the manufacture of fancy leather goods and how to use them. Though Bengal is not famous for its art manufactures in leather yet in some parts of India the people have become famous for their artistic work in leather. The "Frontier belts" of Peshawar are keenly demanded in all parts of India. Richly embroidered Sambhar leather is very often used as table cloths and this kind of manufacturing is done in Gorakhpore and Chanda in the Central Provinces. Leather mats are prepared in the Kurnool District of Madras and good artistic leather for book binding is made in Alwar, in Rajputana and some parts of Bombay, notably Ahmedabad. Carved shields of rhinoceros skin are very carefully prepared in Guzerat.

[1] Miss Ellin Carter, Artistic Leather.

[2] J. T. Luckock, The Manufacture of Fancy Leather Goods, pp. 1-8.

The export of manufactured or finished leather is very small.[1] It consists of boots and shoes and unwrought leather sent to the Straits Settlements, Mauritius, Ceylon, Cape Colony and Natal and other neighbouring Eastern countries. Small quantities are sent to England. Calcutta is a chief exporting centre and the Cawnpore ammunition boots are very well-known in the trade. The necessity of finding a market is not serious as in the case of lightly tanned hides or skins. The internal consumption itself is great and absorbs to a great extent the finished articles such as boots, shoes and sandals which are produced in the country and are sold within the country itself.

Vigorous and well directed efforts should be made to promote the manufacture of the finished leather goods from the raw material in this City itself. Unless this

[1] The following table shows the export of leather and leather manufactures from British India :—

(*Value in Rs. 1,000.*)

Year.	Un-wrought leather.	Boots and shoes.	Saddlery and harness.	Other sorts.	Total.
1914-15 ...	160	104	29	23	316
1915-16 ...	246	58	4	20	328
1916-17 ...	1,279	108	5	37	1,429
1917-18 ...	122	119	10	16	267

The following are the principal exporting firms of tanned hides and skins and leather in Calcutta :—

Graham & Co.
Bird & Co.
Kilburn & Co.
J. Ezekiel.
Grace Bros.
James Scott & Sons, Ltd.
David Sassoon & Co.
A. B. Deigeman, Ltd.
M. M. Ispahani & Co.
National Tannery, Ltd.
Berhampore Leather Mfg. Co., Ltd.
Mysore Tannery, Ltd.

consumption is brought about any artificial restriction of the markets for the raw products as in the case of adopting Imperial Preference will tend to make India poorer in the long run. It is highly desirable to retain the profits in manufactured products within India itself. Indian entrepreneurs should successfully imitate the ways and methods of leather manufacturers in Europe and America as Germany did in the steel trade and the manufacture of machinery.[1] Success smiled on the German efforts as they were able to learn the technique of the machine industry and technology easily. These can be learnt by other nations. Veblen says, "the machine industry runs on certain broad propositions that are simple in themselves and have very wide application in detailed processes, so that it lends itself to oversight and control by a relatively few experts. The special training required for service as operative workman in the common run of machine industries is very greatly less

[1] Mr. Charles Tower says, "in the manufacture of steel ware and of machinery Germany is usually credited not without justice with being rather an imitator than an initiator. Her great success has been achieved by the rapidity with which Germany has adopted the improvements made elsewhere."—"Germany of To-day," p. 173.

Even taking the leather industry, *i.e.*, so far as chrome tanning is concerned, the European and American manufacturers have simply adopted the processes of Germany. The discovery of chrome tannage is due to Germany and its tanners. They began to employ this tanning since 1858. America perfected the processes to a certain extent in the latter part of the 19th century. Prof. Knapp brought out the chrome process in 1858 but till 1878 this attracted little attention. Heinzerling patented his chrome process in 1878 August Schultz of New York was the first industrialist to adopt it on a commercial scale. Later on several improvements in the above process and the "two-bath process" of treating light leather were universally adopted in England, Germany and America, France and Italy.

than the corresponding training required to make an equally competent workman under the handicraft system." According to him "general information and manual dexterity together with some relatively slight and special habituation to the particular processes in the given mechanical occupations is all that is needed in this line to make a very passable working force in the machine industry." He also emphasises on the fact that "the premises and logic of the machine technology are not of such a nature as to offer any serious difficulty in themselves. Their acquirements in essentials, call for no profound or occult insight, no reach of shrewd wisdom and cunning, no exploit of faith, or of poetic vision, no stretch of imagination or of ascetic contemplation."[1] Already to a certain extent the manufacturing problems of leather industry, the problem of adaptation of Western processes to suit Indian conditions and some trade problems involved in this leather industry have been tackled by the Calcutta Research Tannery. The method of improving Indian chrome leathers by the introduction of more fat, the manufacture of sole leather with the utilisation of *goran* mixture, the manufacture of box-sides from local kips by the six days' liming process,[2] the practical demonstration of improved methods of tanning at the District Industrial and Agricultural Exhibitions as at Dacca, Faridpur and Hooghli and the solving of the technical problems for the private capitalists, are attracting the attention of the public towards the leather industry.[3]

[1] T. Veblen, "Imperial Germany and Industrial Revolution," p. 183.

[2] *Vide* the Reports published by the Calcutta Research Tannery, 1919-21.

[3] Two Muhammadan capitalists have come forward to start tanneries in Comilla and they have received substantial help from the Calcutta Research Tannery.

Provided conservatism or caste does not sway the minds of the people much improvement in the position of the leather trade will be noticeable ere long. India has long ago passed the stage at which an American was led to remark "that in India they turned a good hide into bad leather, in America we turned a bad hide into good leather." The tanning industry does not produce only "crust" or lightly tanned cow hides, sheep and goat skins. It now embraces the manufacture of fully chromed and vegetable tanned leather of all descriptions ranging from the sole butts to velvet finished coloured sheep skins and light fancy leather of all descriptions which are produced by the latest scientific methods. Buffalo sole butts, "Cook" brand box and willow chrome sides are at present being produced by the Indian manufacturers. These are of a solid character and excellent finish. Firms possessing good business capacity and financial standing are interesting themselves in the tanning business. In addition to this fact Calcutta is "a port, a market, a clearing house for ideas and schemes for development." There is no reason why another Cawnpur should not arise in Bengal. Like Cawnpur, Calcutta is the centre of the raw hides market. Like Cawnpur it is blessed with Railway connections and what Cawnpur lacks Calcutta possesses in having terminal facilities both as a port and as a railway centre. Enterprising European firms like Graham & Co., Sassoon & Co., Bird & Co., are coming forward to work in the leather industry and time will enable them to acquire all factors necessary for success in the leather industry.[1] Cawnpur had sixty years' start and has produced several generations of skilled workmen and Cawnpur can be considered as the "great emporium of

[1] *Vide* J. C. K. Peterson's Essay on "Industrial Development of Bengal," published by the Indian Munitions Board in 1917.

leather production in India." There is urgent need that Calcutta firms should come forward and work on a large scale on enterprising and commercial principles to the benefit of Indian producers and consumers alike. Like the Cawnpur firms the existing Calcutta firms should form themselves into an amalgamated concern and pooling their resources they should work energetically on the lines laid down by the Government Research Tannery.

CHAPTER X

THE LEATHER INDUSTRY AND TARIFF

"From these considerations it follows that the case of protection with a view to building up productive power is strong in any agricultural country which seems to possess natural advantages for manufacturing. In such a country the immediate loss arising from the check to the exchange of the native produce for foreign manufacture may well be outweighed by the gain from the greater rapidity with which the home manufacturing power is developed. The 'crutches to teach the new manufacturers to walk' as Colbert called protective duties may teach them this so much earlier than they would have learnt it, if left to themselves, that the cost of crutches is more than repaid."

Professor A. G. Pigou.

It has been remarked in an earlier chapter that foreign competition tended to restrict the chances of obtaining the raw skins for the village chamars and that foreign imported leather goods have been ousting the products of the *mochies.* The present leather manufacturing concerns would no doubt have felt the depressing influence of foreign competition but for the existing tariff to the tune of 15% *ad valorem* on the value of the foreign imported goods. Indian producers have always been obsessed with the nightmare of foreign competition and its disastrous influences.

The era of foreign competition in this particular industry commenced from the year 1862 and it went on gathering forces and increasing intensity till the period of the late war. This period from 1862 to 1915 can be divided into two broad divisions. In the first period 1862 to 1896 the United Kingdom was the chief competitor but as tanning processes became perfected in Germany and the

United States of America the latter have practically usurped the predominant position of the United Kingdom as the importer of India's raw hides and skins. This is the chief characteristic of the second period.[1]

Coming to the importation of manufactured leather goods the trend of foreign competition was stemmed in the first instance by the outbreak of war. Were it not for the war the tanning industry would not only have certainly remained in the stationary character but would have dwindled away year by year under the influence of the ever-increasing imports of tanned hides and skins and manufactured goods until perhaps it reached the vanishing point. Secondly, the revenue considerations which led the Government of India to impose a tariff in 1916 and its successive increase in the latter years have been to a certain extent responsible in the falling off of the import figures. The continental countries have not as

[1] Prior to 1862 the export figures of raw hides and skins are not available. The opening of the Suez Canal in 1869 led to a great increase in the export trade of hides. These could not bear the long voyage to England by the Cape of the Good Hope route. The same was the case in the matter of the export trade of tea, jute and food grains. Indian tea was cultivated on an extensive scale from the time of Lord Bentinck in 1833 but it was not exported in large quantities. Tea is mentioned as an article of import by the East India Company so early as 1669 but it was Chinese tea that was reimported from India—*Vide* Select Committee of the Affairs of the East India Company, 1832, Finance and Accounts, Part II, p. 882.

Before the introduction of the railway system and improvements in the means of communication it would have been practically impossible to traverse the long distances in a few days. Raw hides could not have been moved with comparative ease and at low cost over great distances. In 1872 there were only 5,369 miles of railways; while in 1922 there are 37,266 miles of railways. This increase in the railways is the chief cause for the increase of the foreign trade of India.

yet resumed the old role of industrial producers and their financial bankruptcy is a standing menace to the early resumption of the export trade in Indian hides and skins. During the war time much of the cattle were destroyed and the leather industry which to all intents and purposes is mainly dependent on their live stock and imported raw material from India cannot hope to compete with much destructive effect as in the past.

The real economic causes which rendered foreign competition possible are the following :—The unorganised leather industry with its old-fashioned processes of production resulting in goods lacking in finish, workmanship and durability could be easily beaten by the soundly organised leather industry of foreign countries with its utilisation of superior processes of machine production and the help of chemical processes resulting in cheap and fine quality goods. Economists say the principle of comparative costs or comparative advantage is the pivot of foreign competition. Taking the case of the leather industry the question of the economic analysis of the cost of production in the home country and in the foreign countries is not necessary for the goods that are being produced are dissimilar in quality. The employment of labour-saving appliances, large-scale production, the combined march of scientific research and the industrial processes hand in hand, the efficiency of labour, the intelligent system of marketing, their protective tariffs as in the case of America and Germany and more favourable industrial and economic conditions as in the matter of technical education, favourable climate, better class of raw materials, and credit facilities point to the existence of comparative advantages in the tanning and the leather manufacturing industries in the foreign countries. In addition to these there is a protective tariff and the older establishments possess

ample reserves at their credit. They have developed allied industries for the utilisation of by-products. Fortified by several of these comparative advantages the foreign industries have assumed an impregnable strength and Indian economists presume that no individual Indian industry can prosper against the pressure of foreign competition without protection and some of them have inclined to the view that the greater the protection the greater is the prosperity of the Indian industry. To them free-trade is a fatal policy, situated as India is under circumstances which constitute serious industrial and commercial handicaps. The Indian Industrial Commission itself recognises the following handicaps as retarding Indian industrial development—"the natural conservatism of the people, the inefficiency of the labourer, the absence of industrial and technical education, the lack of business enterprise, the shyness of capital for new undertakings and the want of proper organisation for utilising such capital as is available."

Before the question of the necessity or otherwise of a tariff to foster the Indian leather industry is discussed the general results which are reaped by the introduction of a tariff should be understood. Briefly speaking the tariff performs the following services. Firstly it decreases or tends to decrease the importation of goods of foreign origin into the protectionist country and it may tend to diminish foreign competition in the home market of the protectionist country. Secondly it checks the export trade of the competing country in those goods which enjoy protection in the home market. Thirdly a well regulated tariff would develop the industry in the protectionist country as the other productive and economic factors are in its favour. The primary object of the tariff is to allow the protected industry to gain mastery of the home

market and as circumstances become favourable it may extend to foreign markets. This object would be defeated if industrial production is not carried on on economical lines. The cheapness of the article would enable it in due course to enter into foreign markets in spite of any commercial barriers in the way.

In so far as the present conditions of the Indian leather industry are concerned the fact that the quality of the leather products of Indian manufacturers is decidedly improving should be borne in mind. The Indian leather manufacturers though few are able to produce most of those kinds of foreign products that are finding their way into our market. Thanks to the industrial opportunities created by the war and the far-sighted action of the I.M. Board, the tanning industry has been firmly established in this country and several leather factories working on scientific lines are turning out excellent products. The leather industry has entered on a period of industrial transition and change of process. All economists agree as to the advantages of granting protection to industries during the period of transitional changes. The leather industry deserves to be encouraged as the old and conservative methods are being discarded. Subsidiary and parallel industries can also be developed. Thus the *primâ facie* arguments are decidedly in favour of granting protection to the Indian leather industry. There is a prevailing sense of insecurity in the minds of Indian producers which prompts them to agitate for the levying of protective duties. Unfortunately this is based more on imaginary fears than on legitimate grounds.

That the tariff would be advantageous in the case of those goods which are being profitably produced in India is a foregone conclusion. In this category may be placed boots and shoes and foot-wear. Large quantities of these

are being produced and the existing 15 per cent. duty on tariff valuation basis is acting as a stimulus to their production. On the other hand mill leathers, harness and saddlery are being produced in limited quantities and the quality of mill leathers is not so perfect and lasting as the foreign ones. It is this that is standing in the way of their popularity and not foreign competition. An improvement of the quality and durability would by itself create a market for them in this country and no raising of the protective duties seems to be necessary. It might lead towards a premium on inefficiency and actually increase the price of the imported mill leather for the domestic consumer as the superiority of their quality would make him purchase them in spite of their enhanced price. Now that mills are on the increase and factory type of production with the help of almost "human machines" is gradually increasing it would be shortsighted policy to impede their growth.

So far as boots and shoes are concerned it would be poor economic statesmanship indeed, if one were to rest content with the chance protection that is being afforded by the existing import duties which have been levied solely by the exigencies of the financial situation. The magnitude of the duty may or may not be protective enough. As the Indian Fiscal Commission observes "the present Indian tariff gives protection and it gives it in the least convenient and the least beneficial way. The protection is not calculated on the needs of the industry nor does it carry any assurance of a permanent policy. It is casual and haphazard." The industrialists cannot rely on this as it might be removed at any time, should

better financial conditions prevail at any time.[1] One of the maxims of sound public finance is to discard placing too much reliance on taxes levied on consumption goods for these do not indicate a standard of ability but a vague imperceptible and purely subjective measure of faculty. Hence it is quite possible that these duties may be lowered at any future time.

The fundamental factors necessary for a rapid development of the leather industry are in favour of India. There is an abundance of labour cheap yet possessing hereditary skill. The labour suitable for the bark-tanning industry can be had in sufficient numbers while in the case of leather-manufacturing and chrome-tanning the efficiency of the existing labourers needs a great improvement. Wages are not very high and with the adoption of mechanical appliances and the adoption of these labourers to their use would reduce considerably the existing scale of the cost of production. Another factor which considerably influences the cost of production in the tanning industry and leather manufacture is the price of raw hides and skins in the former and the price of tanned skins in the latter. In the case of tanning the cost of production resolves into (1) the price of raw hides and skins, (2) the price of bark materials used as tanning agents or the chemical substances used in chrome tanning, (3) the wages of labourers and other minor charges. It costs a certain sum to work in, handle and finish a given lot of leather whether of heavy or light tannage, the cost of bark alone being considered, it cannot exceed and usually falls short of the price received for tanning even though the price be low. The cost will differ with the circumstances under which the

[1] The import duty on Hides and Skins brings about 62 lacs to the Government, Report on the Indian Fiscal Commission, p. 187.

processes of tanning are carried on. One tanner may devote extra time for finishing, another to the handlers or layers and the freight and price of bark will vary in different localities.

In the case of leather manufacturing the multiplicity of factory conditions complicate the situation and it is not easy to arrive at the cost of production. Establishment, management charges, initial outlay, a sinking fund for the depreciation of machinery, interest on capital, insurance premiums, wages and other incidental expenses would have to be reckoned in arriving at the estimate of cost of production in the leather-manufacturing industry. The normal cost of production cannot be ascertained during these times of abrupt and rapid changes. Provided the quality of industrial organisation improves and the efficiency of the labour force increases under the stimulus of previous industrial training and the higher wages that may be paid Indian leather manufacturers would be in a position of great advantage.

So far as the real basis of the competition is concerned between India and the foreign countries the labour bill is the chief source of difference in favour of India. Indian labour is accustomed to a limited range of necessaries and comforts of life, and the wages bill would always be lower in India. Though the employers can no more dictate their own terms owing to definite labour organisations having been formed to look after the interests of the Indian labourers still so far as international competition is concerned the low scale of wages is in favour of Indian employers. If only the efficiency of labourers is increased, if only the labourers are made to take an interest in what they produce, if only a spirit of real understanding between the labourers and the employers pervades, if only hide production is done on more

scientific lines[1] and as a definite object by itself, if only there is a marked improvement in the quality of the Indian manufactured products, success would be on the side of the Indian producers. If only the producers are satisfied with a decent margin of profits in the industry and if a rigid "costing system" is employed to combine efficiency with economy there is no reason why Indian manufacturers would not be in a position to capture the home market completely. They should display commendable zeal and enterprise in keeping abreast of the times and extending their output. The Indian cotton industry with its modernised machinery, organised production and command of raw material could and did expand on account of the vastness of the domestic market. But the leather manufacturers should not commit the same mistake as the mill-owners have done. The latter have been producing only lower counts perhaps due to the inferior quality of the short-staple cotton. They have not paid much attention towards improving the raw material and the machinery employed.

The one significant fact in the matter of the leather industry which should be kept in mind is that the raw material of the German or American leather manufacture is imported into their countries free of duty from India. As J. D. Whelpley says, "a large amount of their trade is that of distributing agents for the produce of other countries. They are dependent for their raw material which is the basis of the foreign trade on other countries, just as the population of Great Britain is dependent for its foodstuffs on other countries."[2] But by their newer methods of tanning

[1] At present the production of raw hides is considered as an incident of agricultural organisation and life in India.

[2] *Vide* J. D. Whelpley, Trade of the World, p. 8.

occupying a briefer period, the foreign tanners have been able to develop their industries. The manufacture of factory-made leather goods in those countries have enabled them to rapidly oust the Indian tanned leather goods from the Indian market itself. The present relative backwardness of the Indian leather manufacturers is due to their belated start. To remove this more or less a scientific determination of the amount of protection to the leather industry should be made by the Tariff Board.

Demand for the leather goods is on the increase. At present there is a moderate-sized market which will undoubtedly expand into a large market. Even the stalwarts of protectionism admit that unless there is a growing demand for the article protectionist assistance should not be made.

If it is decided to grant protection to the leather industry and if measures indicating intensive State aid are designed, the first and the chief sufferer [1] would be the United Kingdom and the British Empire. Mill leather and to a certain extent superior quality of boots and shoes are imported from the United Kingdom and the British Empire, to a larger extent than from the foreign countries. But this consideration should not stand in the way

[1] The following table shows the imports of leather from the British Empire and foreign countries.

		1919-20.	1920-21.	1921-22.
		Rs.	Rs.	Rs.
Leather goods excepting mill leathers.	British Empire ..	25,83,240	66,48,080	24,99,764
	Foreign Countries	12,36,460	15,66,760	4,07,662
Boots & Shoes	British Empire ...	15,56,280	57,91,800	10,40,497
	Foreign Countries ...	22,21,810	47,91,440	5,01,058

of protection to the Indian leather industry. Each unit of the British Empire should be in a position to develop its resources to the utmost capacity in all directions.[1] The Dominions have already inaugurated this policy. The Governments of the Empire countries have been developing their own boot-manufacturing industries by protective tariff.[2] Australia before the war took 2,500,000 pairs and after the war it has fallen to a low figure. South Africa which took 4,600,000 pairs in 1913 now demands $\frac{1}{3}$ of the figure. New Zealand however continues to absorb British boots in the same pre-war manner. Although the exports of boots and shoes and footwear of the United Kingdom have fallen yet the exports of heavy leather are increasing to a great extent to compensate the loss in the export trade of boots. It is not only Dominion Governments that have raised a protectionist tariff. Argentina has raised a tariff against manufactured leather imports and has announced that it would build the wall higher as soon foreign competition finds it possible to get over it.

Each Dominion country of the British Empire aims to become a self-sufficient country by itself. As expressed by a great statesman at the recent Imperial Conference, each Dominion is aiming to be " mistress in its own Dominion, daughter in the mother's House." India should fall into a line with the self-governing Dominions of the British Empire notably Canada and Australia in this respect.

[1] *Vide* Article on British leather industry, Manchester Guardian, May 22, 1924.

[2] The war gave a decided impetus to the rapid industrialisation of these countries. Canada shows remarkable progress in the development of her textile and steel industries—*vide* Canadian Year Book. Australia has rapidly developed her textile industry and the boot and shoe industry, *vide* Year Book of Australia, pp. 427-429.

Again no country would seriously resent the adoption of active measures for developing the leather industry because our raw produce is so essential for the existence of their industries. Taking the case of raw and tanned hides and skins the following countries consume them in the following manner:

Raw and Tanned Hides and Skins.

Countries.	1913-14.	1921-22.
The United Kingdom ...	25·9%	32·9%
Persia, Arabia, Mesopotamia, Asiatic Turkey ...	——	34·1
United States of America ...	24·3	——
Ceylon	——	9·5
Germany	20·3	——
France	——	3·5
Netherlands	3·3	3·4
Spain	2·8	2·6
Total value of trade in lakhs of rupees	15·95	9·90

Many of the leather-manufacturing firms have been working without the artificial stimulus of a specially devised protective tariff to help them. But they will be in a better position if they are assisted by a scientifically devised protective tariff instead of the chance protection afforded by the import duty, and further assistance is given to them in the different directions pointed out in the other chapters of this monograph.

The Indian Leather Industry will eventually be able to face foreign competition without protection. India need not, like Germany and America, depend on imported raw material for her leather industry. The processes of leather manufacture are more complicated than in

the case of simple chrome tanning and it will certainly take some years to enable Indian labour to acquire the necessary skill and experience. The initial difficulties have to be surmounted and it can be said without hesitation that Indian leather manufactured goods can be sold at a cost enough to face foreign competition in the Indian markets without the help of protective duties. It can create a surplus for export at competitive prices.

The leather industry is capable of expansion and wide development due to the existence of some factors which may be considered as comparative advantages in her favour. The establishment of this industry is a matter of national importance. It is indeed a pity that the Government of India should decide that this industry which gives much promise and is pregnant with much possibilities should not be a subject of enquiry by the Tariff Board. It is high time that this industry should receive early attention in the newly drafted fiscal policy of our country. So long as the Indian tariff is moderate and scientific it would not cause any rise in the cost of living while the growth of national production and the increased exportation of finished goods would more than atone to English export firms and railways for any shrinkage in the exportation of raw hides and skins.

CHAPTER XI

The Manufacture of Tannin Extracts

"India by the extent and favourable conditions of its territory is capable of producing almost every article required for the use of man."
Sir Richard Strachey.

The United States of America is one of the largest producers of tannin extracts and numerous factories are built up every year to manufacture tannin extracts and a flourishing export trade exists in the case of her tannin extracts.

The tanners of Central Europe and Great Britain have realised that the use of the extracts is more economical and advantageous than that of vegetable materials. But the conservatism and lack of knowledge on the part of the Indian tanners stand in the way of their free use. It is safer to rely on the extracts and cheaper to use them than vegetable materials themselves. The Indian tanners are accustomed to bring the leather into direct contact with the tan-stuff and liquor tanning is not so popular as in the case of Europe. Fortunately as India is blessed with an abundance of tan stuffs the use of extracts is not becoming so imperatively necessary as in Europe.

The manufacture of tannin extracts was first experimented upon in Burma but it proved a failure. Undaunted by its failures the Government have again set up research in this line hoping to discover some suitable tanning materials to take the place of the failing babul bark supplies of North India. The Escoiet Factory at Maihar

was chiefly meant for this business. The turwad or *Cassia Auriculata* or Avararam bark of South India is *per excellence*, the best vegetable tanning material but excessive railway freight prohibits its use by the North Indian tanners. Its excellence as a tanning material for the production of "crust" or lightly tanned leather are pointed out by the Indian Munitions Board Bulletin as follows:—"the great merits of the turwad bark are that it is very easy to use and quick in its action, it adds weight and plumpness to the hides and produces a leather which is capable after further treatment of the curriers of being turned into a great variety of uses. It is desirable that it should be made available to tanners of North India."

It is not however indispensable and the Allahabad Factory was producing excellent "crust" leather without the use of turwad. But as it is so easy to use, all big tanners in South India have their own turwad plantations. Besides the forest departments of Bombay, Madras, Central Provinces and the United Provinces are looking forward to its cultivation on a large scale.

Although Bengal tanners cannot depend on the use of turwad they have in the mangroves of the Sunderbans, suitable tanning materials. The Goran mixture that can be utilised by the tanners is being experimented upon by the Calcutta Research Tannery and it has fixed the formula for its use as follows:—(2 babul *plus* 1 goran *plus* 1 myrobalan). This mixture is suitable for the production of the sole leather manufacture. The "Payon" is to be found in Burma and is largely used for the making of tannin extracts. Messrs. Graham & Co. make extensive use of this in conjunction with another material.

Bengal tanners can depend on the supply of myrobalans. Not only is the stock sufficient for them but

Bengal has a large export trade in the tanning materials. Cutch [1] is exported to France, South and East Africa, Ceylon, the Fizi Islands and Great Britain. Myrobalans are sent to Germany, Great Britain, Austria, Australia, Belgium, China, Japan, the Fiji Islands and South America. In the district of Burdwan there is a tannin extract factory [2] worked with mechanical power employing 322 labourers. The whole of the extract is shipped and sent out of the country. The Indian tanners should learn the use of this and effect great saving in the cost of tanning materials.

It is costly to manufacture extracts and they do not give as good a colour as raw stuffs and this can be rectified by the proper admixture of other materials in conjunction with it. Mr. Pilgrim, the tannin expert, has prepared a list of tan stuffs out of which extracts can be prepared. Though these may not be utilised by the Indian tanners they can be exported out of the country as they are always welcomed by the tanners of Europe. The commercial exploitation of Mr. Pilgrim's work solely depends on financial considerations. Out of the twenty-one recommended materials of Mr. Pilgrim the following two can be utilised for the extracting of tannin and the mangrove extract can be exported to Great Britain.[3] The bole barks of (1) Goran, (2) Sundri can be utilised

[1] *Vide* Report on Hides and Skins and Leather, published by the I. M. Board, p. 168.

[2] The East India Tannin Extract Works, *vide* Large Industrial Establishments in India.

[3] The British leather trade is mainly dependent on imported tan stuffs, *e.g.*, chestnut, suebracho, mimosa, velonia, sumach, and gambier. If a large quantity of mangrove extract is steadily supplied there is no reason why the British tanners should not condescend to use this extract.

in the preparation of extracts. The mangrove extracts can also be used for water-proofing, fishing nets and sails and to a certain extent in dyeing as a substitute for cutch.

India is backward in the matter of leather trade chemistry. In Great Britain the production of artificial tannin materials known as "syntans" is being perfected. Dr. Stiasney was the first chemist to treat phenolic substances in a special way to produce syntans capable enough to convert hide into leather. Syntans are fast becoming articles of commerce and a day may arise when they may be used as substitutes for the natural vegetable tannins. This sort of progress in applied organic chemistry has not been achieved in this country. Closer co-operation between the scientists and the industrialists is essential for the rapid development and progress of the leather industry.[1] The scientific technique of production not only in the matter of leather industry

[1] Even in the United States of America the Federal Government has appointed the Bureau of Standards working under the Department of Commerce, to maintain close contact with American manufacturers and producers and immensely assist them in the solution of their technological problems. They have also established an excellent liaison with the Universities and educational authorities and individual students in colleges. The staff of the Bureau of Standards consisted of 342 statutory employees and 508 temporary employees engaged in research. The funds granted to the Bureau amounted in 1920 to $ 1,729,000. It assisted the Tanners' council in the establishment of a "school of tanning."

One noticeable feature is that the private associations donate funds to the Bureau of Standards to carry on industrial research. The Carnegie Corporation, the Rockfeller Foundation and the Commonwealth Fund have granted large funds for its upkeep and expansion. American industrial efficiency is solely due to the remarkable research work undertaken by this Bureau of Standards and other private manufacturing firms, *vide* Bulletin of the National Research Council, "The United States of Amarica."

but in steel, oil, copper, rubber, paint, wood and other industries is largely dependent on the discoveries of chemistry. "The science of chemistry has become along with the sciences of power, of machinery and of transportation one of the indispensables in economic organisation." The possibilities of reducing the cost of production, creating new goods for satisfying human wants and of increasing the country's output are chiefly bound up with the future of chemical science.

RECAPITULATION.

1. Leather is an article of great military importance. To a self-sufficing community leather is as much important as cotton. Raw hides and skins, vegetable and chemical tanning materials and labour accustomed to handling leather material and possessing hereditary skill and instinct exist in abundance. Scientific organisation and a large outlay of capital are needed to develop the leather industry in this province.

2. Instead of the existing exportation of raw hides and skins to foreign countries and importing our leather requirements into this province, it behoves us to turn our attention to the manufacturing side of the problem. India can not only be made economically self-sufficient in the production of her leather requirements but she can send her surplus to foreign countries in a manufactured state instead of in the shape of raw material.

3. The quality of the hides and skins should be improved by careful breeding of the cattle and the live stock on the part of the farmers. Unceasing propaganda on the part of the District Boards and the help of the Veterinary department of the Government of India can do something to improve the breeds of the cattle. Increase of fodder supply, the diminishing of the virulence of the cattle diseases and the improving of the breed of cattle are important necessities. Increase of veterinary hospitals and the increasing interest on the part of private persons in veterinary matters is necessary.

4. The turning out of the inferior leather by the inefficient and careless handling of the village tanner

should be stopped and this can be done by teaching him to overhaul his antiquated processes of tanning with the help of improved tools and appliances. His rule-of-thumb methods should be placed on a scientific basis.

5. Small tanneries by local capitalists should be started in those districts where it is easy to procure vegetable tanning materials and a large number of the chamars. These can suitably be established at the following centres—Pabna, Dacca, Nadia, Rangpore and Bankura. They should seek the co-operation of the Government Research Tannery at Calcutta in the laying out of their sheds on improved lines. Finishing, currying of leather and all other machine work can be safely entrusted to the Research Factory of the Government.

6. The *mochi* and the leather workers' position will be benefited to a certain extent if good raw material is employed by him and by the growth of organised tanneries a supply of well tanned leather is assured. The incubus of the middlemen should be removed and if co-operative distribution and sale societies arise they can immensely benefit him. Even though the competition of factory-made things such as boots and shoes, harness, saddlery and transport gear is great yet decorative shoes, musical instruments, agriculturists' requirements such as ghee and oil jars, straps and whips can be successfully manufactured by him. He can prove an efficient worker in the organised tanneries or he can be utilised as a labourer in the art industries of leather. Little adaptability to machine work is required. As the late lamented Mr. Gokhale has said, "no industry can be developed without developing the condition of the people who are engaged in it." Provided the *mochi* reforms his habits of drinking and improvident spendthriftness there is some future for him. But the possibilities of developing his business are

limited and always liable to be usurped by manufacturing industry.

7. Organised tanneries doing business on a large scale and employing machinery have been getting forward contracts for their finished products. Provided large capital, expert technical guidance, and business organisation are forthcoming the manufacture of leather goods can be easily taken up. Chrome as well as bark tanning can be encouraged. It may perhaps be considered as absurd to talk of developing the hand industry of the *mochis* and the village tanners and the machine industry side by side. It is quite true that the development of the one would interfere with the growth of the other but this would be limited to only a small range of goods, for as already pointed out the two industries cover two altogether different fields of production.

8. In the case of leather manufactures the internal market exists to a certain extent and the handicap due to a late start can be remedied to a great extent if sufficient attention is paid to quality, finish, workmanship and durability of the articles. The undertaking of manufacturing goods requires the investment of large capital in costly machinery, prohibitive overhead charges for skilled technical staff and severe competition with highly skilled leather manufacturers of America and European countries.

9. Coming to the export side of the leather industry it must be recognised that for a long time to come it would not be able to turn out all raw hides and skins into tanned leather but attempts should be made to substitute as far as possible tanned hides and skins in place of raw material. The commanding position of India in the matter of raw material should not be forgotten and so long as the demand for leather is on the increase, any reasonable dictation on the part of India cannot be

ignored by other countries if they wish to have leather at all. Any discrimination and levying of import duties against Indian tanned leather would end in fining themselves heavily. They would be eager to obtain good quality leather as it would form the basis for their leather manufacturers. The prejudice against Indian tanned leather was chiefly due to its bad quality. A lot of improvement is necessary as regards the quality.

10. The present distaste for leather as unsavoury business should be overcome and small capitalists should be enterprising enough to come forward and work in the art industries of the leather trade. There is enough money in this trade and provided personal supervision is keen, the workmen are honest and hard-working and the cost of manufacturing is not very great these things will find ready sale. It must be realised that the spread of education is creating a great demand for artistic productions and fancy leather goods and small capitalists would find it profitable to undertake this business.

11. It is highly advisable to learn the manufacturing of tannin extracts out of vegetable tan-stuffs. It is preferable to educate the Indian tanners in the economical use of these extracts and although no immediate fascination for it may be noticeable on the part of the majority of the Indian tanners, it can safely be exported and made to increase the national wealth of the country.

12. Associations should be started in India on the model of the United Tanners' Federation and the Federation of Curriers, Light Leather Dressers and Tanners which confine their attention to general trade matters affecting the leather industry. The Leather Producers' Association for England, Scotland and Wales exists for the purpose of dealing with labour matters. Besides these the British Leather Manufacturers' Research Association, the

British Tanning Extract Manufacturers' Association and the Leather Trades Mutual Insurance Association have been doing good work in their respective fields. Such organisations are greatly needed in this country and no time should be lost in creating such associations which should act as the accredited channels of communication between the Government and the leather trade.

13. The leather industry is suitable to this province and it can develop without protection to a certain extent but it is still in its infant stage and should be nursed by the Government and looked after till it reaches a grown-up adult stage when it may be allowed to breathe the vitalising air of freedom. The Government of Bengal has been following the right lines of developing this industry. Firstly, it has interested the people, and has made the general community realise the financial gain it entails. It is now improving the methods of production and is beginning to educate them commercially. With a proper appreciation of the natural advantages for developing the leather industry, increasing experience and gradual rise of practical men in touch with modern industrial requirements and capable of adapting labour and methods to local conditions may lead to the development of the leather industry in Bengal commensurate with its existing possibilities.

APPENDIX I.

List of the Indigenous articles manufactured by the mochis and the chamars.

Name of the Article.	Purpose.	Process of Manufacture.	Sources of supply.	Quantity.	Value of the articles.	REMARKS.
1. Water bags	For raising water from wells.	They are made out of fairly well tanned cow hides, buffalo hides being used for making large buckets, the bucket is semi-cylindrical in shape and suspended from an iron ring. At the bottom is a hole 8″ in diameter which leads into the discharging pipe—a leather tube 5 or 6 feet long, the open end of which is attached to a rope.	1. Madras and United Provinces Agriculturists make great use of them.	According to Mr. Chatterton's estimate Madras yearly requires Rs. 40 lakhs worth of buckets.	Rs. 6 to Rs. 9 each.	Light iron buckets are displacing these leather bags.
2. Oil and Ghee pots	For storing oil and ghee.	They are spherical in shape and closed by a wooden ring which fits into a short neck.	2. Madras, United Provinces and Bengal.	......	......	Kerosene tins are lessening the demand.
3. Bellows	Used by the blacksmith.	They are made of goat-skin, the skin with four legs left unattached is wetted and filled with sand. It is then dried in the sun, the sand shaken out, the skins fitted at the hind quarters for blowing with and the pair of bellows is complete.	3.	......	Rs. 3 a pair	......

Name of the Article.	Purpose.	Process of Manufacture.	Sources of supply.	Quantity.	Value of the articles.	Remarks.
4. Drums	Used for beating at the processions.	The skins are stretched upon wooden vessels and simply scraped to the required thickness with a razor.	4.	......	......	......
5. Country harness	Used for ryots' cattle.	Untanned hide is used and it consists of rough bridle reins and stirrups.	5.	......	Rs 20 to Rs. 30.	......
6. Leather Saddles	For riding purposes.	Leather is stuffed inside with cocoanut fibre covered with jute and cotton.	6.	......	Rs. 8 to Rs. 10.	......
7. Leather collars	For attaching to the bull's neck.	......	7.	......	......	......
8. Whips	For cattle drivers.	Four slips of raw hides are twisted together and waxed.	8.	......	......	......
9. Ropes	For dragging temple cars in procession through the streets.	Well made by soaking and salting a hide and then it is cut into strips and twisted round the trunk of a tree and left to dry.	9.	......	Rs. 10 to Rs. 12.	......

10. Musical instruments	......	By stretching goat skins over wooden frames. In case of bigger things the raw hide is shaved on the flesh side and then dried and hair removed by rubbing with wooden ashes.	10. Burma	......	From Rs. 12 to Rs. 5 each.
11. Book covers	For binding books.	Sheep skin and cow hide is generally used. It is set out and nailed on boards to keep them stiff and then when dry, taken off and cut to the larger square or oblong and then stained with two or three coats of a red lac solution.	11. United Provinces.	......	......
12. Native shoes	For foot wear	......	12.	......	Rs. 1-8-0 to Rs. 5.
13. Boots and slippers	......	......	13.	......	Rs. 3 to Rs. 5 and Rs. 1-8-0.
14. Straps	For fastening to the ploughs.	......	14.	......	As. 2.
15. Sheaths and Scabbards	Cover for knives, swords and bayonets.	......	15. Calcutta, Malabar, Ahamadabad and Khangra District.	......	As. 8 to Rs. 2-8-0.

Name of the Article.	Purpose.	Process of Manufacture.	Sources of supply.	Quantity.	Value of the articles.	REMARKS.
16. Shoes with wooden sandals	For wear during the rainy season.	......	16. Malabar	......	As. 12 to Rs. 2	
17. Baskets	For storing pepper paddy and other grains.	......	17. Malabar	......	Re. 1 to Re. 1½	
18. Ornamented leather work	Waist belts, inkstands, cigar cases, horse-trappings and round boxes for gloves.	......	18. Bilaspore and Kangra Dt.	......	As. 8 to As. 12.	
19. Fringes	Used for the bull's forehead.	......	19.	......	As. 4 to 8.	
20. Blinkers	For protecting the eyes of the bulls when working at the Persian wheel.	......	20.	......	......	

21. Shields	As protection against the enemy's arrows on the battle-field.	They are made of rhinoceros hide or bison's hide. They should be hard and tough in texture.	21. Ahamadabad, Guzerat and Ratnagiri Dt.	......	Rs. 10 to 15
22. Ginning rollers	For use in the cotton mills.	......	22. Broach District.	......	......
23. Enamelled hoods	......	......	23. John Tail & Co, Calcutta.	......	Rs. 20 to 24
24. Ordinary hoods	......	......	24. Do.	......	Rs. 7 to 9
25. Sole leather	For use in the making of the heels of boots and shoes.	Buffalo hide is used ...	25. Do.	......	Re. 1 per foot
26. Japanese hide	......	......	26. Do.	......	Rs. 15 per piece.
27. " Kuppi "	For preserving scent.	......	27.	......	......
28. " Sarnais "	For working fishing nets in the river.	Inflated nilgai hides are used to support a cot.	28.	......	......

APPENDIX II.

The following table gives an idea of the occupations of the chamars and the *mochis* :—

Occupations.	Total Number.	Actual Leather Workers.		Partial agriculturists.		Dependents, both sexes.
		Male.	Female.	Male.	Female.	
1. Tanners, curriers, leather dressers and leather dyers.	32,145	12,350	305	1,003	16	19,490
2. Makers of leather articles such as trunks, water bags, saddlery and harness, etc.	213	102	8	...	...	103
3. Furriers and persons occupied with feathers.	262	114	13	2	...	135
4. Bone, ivory, horn, shell, etc., workers.	9,487	12,817	427	199	...	6,243

APPENDIX III.

The following table shows the *mochis* who have left their traditional leather-making business and are employed in other industrial pursuits. About one-third of the total number of *mochis* have left their traditional occupation :—

Occupations.	Skilled employees.	Unskilled employees.
Coal mines ...	117	1,110
Cotton mills ...	160	535
Jute mills ...	6,941	21,883
Silk filatures and mills ...	218	148
Iron foundries ...	325	1,674
Machinery and Engineering works.	195	301
Paper mills ...	41	680
Flour mills ...	4	69
Railway dockyard and Steamer.	512	1,045

Besides these unskilled employees some of these unskilled chamars and *mochis* (numbering 8,136) are working in the tea-gardens, as railway coolies and as day-labourers in docks and ships. They form a considerable portion of the unskilled labourers of the province and they contribute about 12 of the total labour force in Bengal.

APPENDIX IV.

The following table gives an idea of the literate element in the chamar and the *mochi* caste.

			Chamars.	Mochis.
Total number—	...	...	147,859	417,225
Male	...	...	89,278	225,735
Female	...	...	58,376	191,410
Total literate	...	...	4,596	8,206
Male	...	...	4,446	7,689
Female	...	...	150	326
Total literate in English		...	383	381
Male	...	...	379	370
Female	...	...	4	11

Vide page 235, Vol. II, Bengal Census Statistics (1921).

APPENDIX V.

The following table shows the distribution of chamars according to the different districts of Bengal :—

	Total Workers and dependents.	Actual workers.		Partial agriculturists.		Dependents, both sexes.
		Male.	Female.	Male.	Female.	
Burdwan Division ...	3,426	1,405	287	82	...	1,734
Burdwan ...	464	162	12	8	...	290
Birbhum ...	321	201	1	10	...	119
Bankura ...	1,408	513	267	47	...	629
Midnapore ...	532	53	6	9	...	533
Hooghli ...	136	70	1	8	...	65
Howrah ...	504	406	...	...	...	93
Presidency Division	10,447	3,749	194	252	7	6,504
24-Paraganas ...	2,684	1,491	81	50	...	1,112
Calcutta ...	389	235	2	3	...	152
Nadia ...	1,024	339	3	17	...	682
Murshidabad ...	1,121	241	37	7	...	843
Jessore ...	1,165	360	1	...	...	8,021
Khulna ...	4,064	1,083	70	175	7	2,911
Rajshahi Division ...	10,956	4,605	155	336	6	6,196
Rajshahi ...	3,451	1,159	47	105	5	2,245
Dinajpur ...	391	228	16	6	...	147

	Total Workers and dependents.	Actual workers.		Partial agriculturists.		Dependents both sexes.
		Male.	Female.	Male.	Female.	
Jalpaiguri ...	548	337	16	6	...	155
Darjeeling ...	35	24	...	...	...	11
Rangpur ...	3,167	1,453	31	152	1	1,683
Bogra ...	722	428	7	46	...	287
Pabna ...	2,207	797	22	14	...	1,388
Malda ...	435	139	16	4	...	280
Dacca Division ...	13,313	4,351	117	496	3	8,845
Mymensingh ...	4,438	1,564	59	90	3	2,815
Dacca ...	7,540	2,284	48	390	...	5,208
Faridpur ...	379	63	...	...	...	316
Bakarganj ...	956	440	10	16	...	506
Chittagong Division	3,965	1,273	...	38	...	2,692
Tippera ...	3,534	1,187	...	35	...	2,347
Noakhali ...	38	19	...	...	...	19
Chittagong ...	393	67	...	3	...	326
Hill tracts ...	...	...	...	...	...	...
Bengal States...	702	567	6	22	...	129
Cocch-Behar ...	702	567	6	22	...	129
Tripura State...	...	...	...	...	...	...
Sikkhim ...	...	...	...	...	...	...
Bengal British-Territory.	42,809	...	...	...	...	...

APPENDIX VI.

The following table shows the distribution of workers in hides and skins and materials from the animal kingdom according to their religion.

	Tanners, Curriers, leather dressers, leather dyers.	Makers of leather articles, such as trunks, etc.	Furriers and other persons concerned with feathers.	Bone, ivory horn, shells, etc.
Total No. of workers.	32,847	213	362	9,487
Hindus ...	30,207	123	251	8,939
Moslems ...	2,569	85	6	537
Christians ...	17	...	...	...
Buddhists ...	2	...	3	...
Animists ...	49	5	2	2
Others ...	3	...	...	...

APPENDIX VII.

In Calcutta air-dried and arsenicated hides are ordinarily done up in bales of from 100 to 500 pieces and dry-salted in bales of from 80 to 300 pieces. Buffalo-hides are baled in 40 to 60 pieces.

TABLE RELATING TO EXPORTERS' MARKS IN THE CALCUTTA HIDE MARKET.

Buffalo Hides.

		Commissariats Slaughtereds.	Slaughtereds First.	Dead Second.	Rejections Third.	Double rejections.
Arsenicated ...	Agra ...	AABCS	AABS	AABD	AABR	AABRD
Ditto ...	Real Purneah...	...	PRABS	PRABD	PRABR	PRABRD
Ditto ...	Durbhangah ...	...	DABS	DABD	DABR	DABRD
Arsenicated cured...	...	...	ACBS	ACBD	ACBR	ACBRD
Salted ...	Dacca ...	...	DB F	DB S	DB R	DBR R
Ditto ...	Agra ...	SABCS	SABS	SABD	SABR	SABRD

Cow Hides.

Arsenicated ...	Agra ...	AACCS	AACS or AACS No. 2.	AACD	AACR	AACRD
Ditto ...	North-western...	AACCS-NW or NWACS	AACS-NW or NWAS	AACD-NW or NWAD	AACR-NW or NWAR	AACRD-NW or NWARD
Ditto ...	Real Purneahs...	...	PRACS	PRACD	PRACR	PRACRD
Ditto ...	Durbhangahs ...	...	DACS	DACD	DACR	DACRD
Arsenicated cured...	...	...	ACS	ACD	ACR	ARD
Arsenicated un-crumpled.	...	...	ACS A	ACD A	ACR A	ARD A
Salted ...	Best Chittagong	...	BCS	...	...	...
Ditto ...	Best Dacca ...	...	BDS	...	...	...
Ditto ...	Dacca Mixed ...	...	MDS	MDD	...	...
Ditto ...	Dacca ...	...	...	...	..	DRD
Ditto ...	Real Meherpores	...	RMS	RMD	RMR	RMRD
Ditto ...	Meherpores ...	...	MS	MD	MR	MRD
Ditto ...	Agra ...	SACCS	SACS	SACD	SACR	SACRD

GLOSSARY

1. *Russia leather.*—It has an agreeable perfume and communicates it to other objects placed in contact with it. Even insects are repelled by its odour. Unlike other kinds of leather it is not spoiled by dampness. It is extensively used in bookbinding business. The process of its manufacture can be obtained by consulting Dr. Ure's Dictionary of Arts and Manufactures.

2. *Morocco leather.*—This is another important kind of light or fancy leather which is manufactured in England and the Continent. It is prepared out of tanned goat skins and is usually dyed on the grain side. It has a glossy, wrinkled and fibrous appearance and is used for carriage linings, superior bookbinding, pocket-books, purses, chair covers and other useful purposes. The demand for this leather is so great that imitation morocco leather is made out of sheep and calf skins and is used for bags, bookbinding, chair covers and many other useful purposes. The best moroccos are manufactured in Paris. It is also extensively used in the slipper trade.

3. *Skiver.*—It consists of sheep skins split by machines and converted into a thin variety of leather. They are used for bookbinding, pocket-books and linings.

4. *Cordovan leather.*—It was originally prepared in Cordova by the Moors. It has a very fine and beautiful grain and is dyed in every variety of shade and colour. Now France, Germany and Hungary also produce these fine skins. They are made of goat and dog skins. Hog skins can also be prepared according to this method.

5. *Roan.*—It is leather prepared from sheep skins tanned with sumac. It is not however grained like the Morocco leather after currying. These skins are used for preparing leather for the rollers of cotton spinning machinery.

6. *Hungary leather.*—It is made out of strong hides treated with alum, common salt and tallow by a quick process of tanning lasting about two or three months.

7. *Enamelled Leather.*—It is also known as "patent" leather. It is made out of calf, seal and other skins with a varnish composed of dry oil, vegetable black and Prussian Blue. Patent leather is now produced with the help of celluloid compounds. The British Manufacturers of patent leather for motor car purposes are recognised as being the first in the world.

8. *Chamois leather.*—This is known as oil leather. It is prepared out of splits or linings of the sheep skins. The plant required for making this leather is costly and it is mainly in the hands of a few concerns in England. It is of universal use—by the tailor, the shoe-maker, the fancy leather goods-maker and for other domestic purposes. America annually imports a large quantity of this kind of leather from England.

9. *Buff leather.*—This is also known as "belt" leather. The principle of manufacture is the same as is the case of chamois leather and well selected cow and buffalo hides are utilised in its preparation.

10. *Crop leather.*—It is prepared from the hides of cows provided they have not calved already and small oxen. This is used for sole leather.

11. *Shagreen.*—It is leather made out of the skin of the horse, wild ass and camel. It is used for covering the cases of watches, spectacles and surgical instruments. Sometimes fish and shark skins are used in preparing

this kind of leather. It is usually dyed and used for covering small boxes, tubes of small telescope, etc. In Japan the skins of sharks are utilised in making of shagreen, for the handles of swords and various fancy articles. In India the local custom however is to cut up the sharks without skinning them.

12. *Vellum.*—It is prepared from the skins of calves, kids and still-born calves and lambs. Great care has to be taken in the preparation of this delicate skin. English vellum is made out of split sheep skins.

13. *Parchment.*—It is prepared from the skins of sheep and goats and usually covered green. It is used for writing purposes since an early date. It is made out of hog-skins and is used in the sieves used in powder mills for granulating the gun powder.

14. *White leather.*—It is prepared out of sheep skins treated with alum salt. It is chiefly used by druggists and also as workmen's aprons.

15. *Fresh hides* or "green" hides mean those coming from the slaughter houses.

16. *Dried hides* or "flint" hides are excessively hard due to the fact that they have been dried in the sun. They usually require some preliminary treatment such as soaking, rubbing, and beating to make them ready for tanning.

17. *Salted hides.*—These are in a moist condition covered with a loose salt to a certain extent.

18. *Dried salt hides.*—These are both dried and salted as many as six times. They are more pliant than the flint hides. The "Dacca" hides are mostly dry salted hides.

19. *Wet salted hides.*—These are covered with bright or saline matter. Preliminary treatment is required to make them ready for actual tanning.

20. *Box sides.*—Imitation box calf is prepared out of split hides by the chrome process and are usually black

finished. Coloured chrome sides are the same finished in different colours. Box kips are the same made from East India kips.

21. *Waxed kips* are produced by the vegetable tannage process of East India kips and finished black. Waxed leather is always finished on the flesh side only.

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OPINIONS

ON

“PRESENT DAY BANKING IN INDIA.”

The Mysore Economic Journal, July, 1925.

“The author deserves to be commended for the laudable attempt he is making in getting honourable Banking methods prevail in this country. His chapters on Joint-stock Banks and Banking Reform show that he can be suggestive and warm. He urges stringent banking legislation and we entirely agree with him in this matter. It is true that legislation cannot achieve everything; still it can accomplish much.....Legislation should not be delayed much longer. In urging reform in these directions the author has in our opinion done the right thing. He knows which way the wind is blowing and it is but right that those interested in credit questions should know what he says. We commend this new edition to all interested in Banking in India.”

The Forward, August, 16, 1925.

“His account of the indigenous bankers of India contains many new facts and is a definite contribution to our knowledge on the subject, showing considerable study and research on the part of the author.. .. One may not agree with all his views but one cannot fail to be impressed with the earnestness and scholarship of the author.”

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The British Trade Review, August, 1925.

"Mr. Rau's book is a scholarly survey of the Indian Banking system and is the more welcome for the moderation with which its criticisms are expressed. The section dealing with banking reform is particularly suggestive. The book deals with more immediate issues than this; the work of the Imperial Bank of India, the high level of the deposit rate, the need for more intelligible balance-sheets, the greater development of the cheque system and the concentration of reserves are intimately discussed. Mr. Rau calls for legislation and his argument derives force from the unfortunate failure of the Alliance Bank of Simla case."

OPINIONS

ON

THE ECONOMICS OF THE LEATHER INDUSTRY.

Modern Review.

"In the series of the informing articles on leather industry published in the Welfare the learned author has dealt with the possibility of establishing a successful leather industry in this province The series of the articles ought to be read generally by all interested in the industries and commerce of India and particularly by those who are concerned with the leather industry and business."—April, May, June, 1925.

M. G. Mansuri—Manufacturer of Pickers—Ahmedabad.

"We highly appreciate your informative article on leather industry and the valuable suggestions for the successful manipulation and marketing thereof."